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SEPTEMBER 22, 1949

Paper TRADE JOURNAL

PUBLISHED WEEKLY

WOOD PULP

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- You want economy in your purchasing.
- You want dependable service.
- We can serve you well: Bleached and Unbleached Softwood and Hardwood Sulphites, Sulphates and Groundwood to meet all your woodpulp requirements.

GOTTESMAN & COMPANY
— INCORPORATED —
22 EAST 40th STREET • NEW YORK 16, N. Y.
EUROPEAN OFFICES: Birger Jarlsgatan 8, Stockholm, Sweden

A CYLINDER MACHINE VAT SECTION *as long as the height of City Hall, Philadelphia*

Purely imaginative, of course, but it illustrates what all the vats we have built since the end of the war would make if placed side by side. We're conservative in our comparison too, because City Hall, Philadelphia, is 548 feet high to the top of William Penn's hat and the 93 vats would total over 560 feet.

Some of these Downingtown PROFLOW and CONFLOW Vats are for complete machines, making sheets calipering from 9 to 50 points, and the caliper being held to plus or minus ½ point and the weight held to within 2 to 4%. Others are for new liner vats on old machines, to improve coverage with minimum liner usage. Altogether, the vats made, or were added to, a total of 23 machines, one being the "World's Largest Combination Felt and Liner Board Machine" with 10 vats, other big machines being three with 8 vats and three with 7 vats. These 93 vats were built in every possible type of construction.

With our wealth of MODERN cylinder machine designing and building experience at Downingtown, a talk with one of our engineers may convince you that "*you cannot afford to do without the equipment you think you cannot afford to buy right now.*" Your problems of quality and production can be discussed and the solution recommended. Call on us.

DOWNINGTOWN MANUFACTURING COMPANY

DOWNINGTOWN, PA.

DESIGNERS AND BUILDERS OF PAPER MAKING MACHINERY SINCE 1880

Its advantages are 3-fold

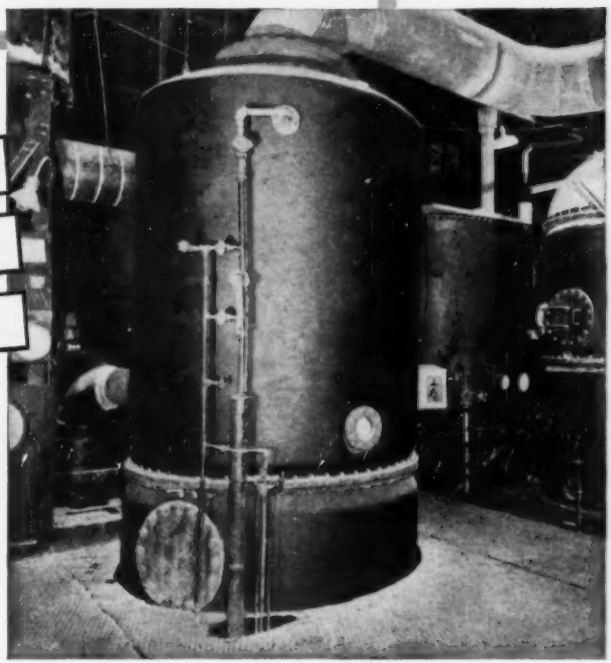
THIS NICKEL-CLAD STEEL EVAPORATOR . . .

PROTECTS AGAINST

CORROSIVE ATTACK

PRODUCT DISCOLORATION

METALLIC CONTAMINATION



Lukens Nickel-Clad Steel caustic soda evaporator at the Canton, North Carolina, plant of Champion Paper & Fibre Co. Built by R. D. Cole Mfg. Co., Newnan, Ga.

Champion Paper, alert to ways of keeping product quality high, chose Lukens Nickel-Clad Steel for this evaporator. There is no corrosion of the nickel surfaces in contact with caustic soda to cause contamination. Equipment has long life with low upkeep.

Producers of caustic soda long ago set the pattern for users of this highly corrosive chemical. Only nickel is allowed to come in contact with it. Lukens Nickel-Clad Steel provides this surface where plate construction is required —*solid* metal protection with *clad* steel economy.

Where other corrosive conditions are encountered, equipment may employ Lukens Stainless-Clad, Inconel-Clad or Monel-Clad Steel. In each, a uniform cladding, usually 10% or 20% of total plate thickness, is permanently bonded to steel backing plate. All are available in the extra-smooth sodium hydride finish.

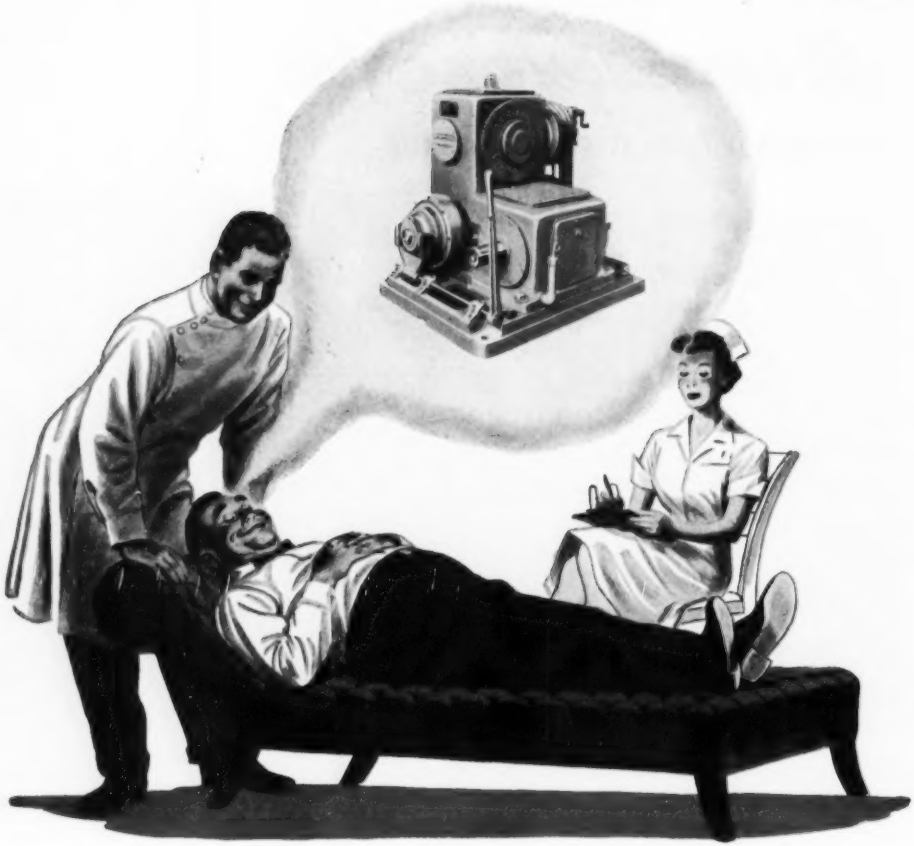
Bulletin 470 tells you more about the use of Lukens Clad Steels in the Paper Industry. For a copy, write Lukens Steel Company, 403 Lukens Bldg., Coatesville, Pa.

CLAD METAL STEEL

Come and see us at the Metal Show in Cleveland, October 17-21, Booth 503.

LUKENS
Nickel-Clad Stainless-Clad
Inconel-Clad Monel-Clad
STEELS

SOLID METAL ADVANTAGES WITH CLAD STEEL ECONOMY



LET US SYCO-ANALYZE YOUR PLANT

Moore & White has acquired all rights to the famous Syco Drive. It now becomes a logical and major member of our teeming family of fine paper-making machines. The advantages of the Syco Paper Machine Drive are not too numerous to mention; so we'll mention them.

It's safe, and uses only half the space occupied by old-fashioned drives. You have a "clean" mill uncluttered by overhead shafts, pulleys, idlers, countershafts and belts, guards for belts and gears, superstructure, ladders, or catwalks. There is no drive equipment above or below the floor level.

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Our sales engineers are itching to apply Syco efficiency and economy to your machines. Their investigations and ponderings, like all Moore & White surveys, are made gratis and with thoroughness, competence, and enthusiasm. Chances are, when they've made their recommendations, they'll sell you a bill of goods that you'll like.

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MEMBER

ABP ABC

SEPTEMBER 22, 1949
Mill Equipment Number

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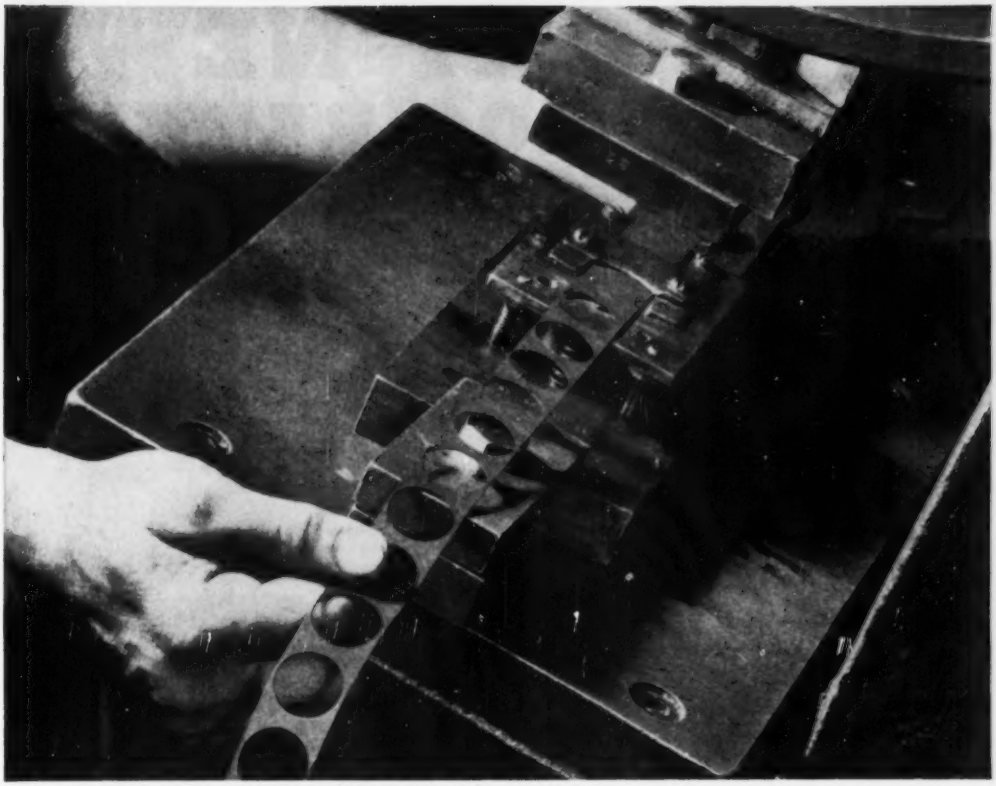

Tensilite 300, a product of Plastic Products Division, The J. P. Lewis Co., Beaver Falls, N. Y.

New insulation punches better ... pinches pennies, too!

THE machine pictured here is cold punching a high pressure laminate insulating material—an operation that often "just couldn't be done." Now it *can* be—easily—using Tensilite 300, with important savings to boot.

Tensilite 300 is a new high pressure plastic laminate. It's made of a new type of virgin pulp paper, Hycar American rubber, phenolic resin and other ingredients.

Hycar makes the sheet highly flexible, eliminating the problem of a too brittle sheet which may crack or tear during punching. With most conventional laminates, it is often necessary to heat prior to punching. With Tensilite 300, the thinner laminate sheets may be punched cold.

Hycar imparts other exceptional advantages, too. It improves practically all strength properties of this new insulating material . . . gives it better moisture resistance and electrical properties. All this at approximately half the cost of a standard high pressure laminated material!

Hycar made an improvement *and* did a cost-saving job here as it has in so many other fields. For Hycar is extremely versatile—light in weight, resists oil, gas, heat, cold, weather, wear and abrasion. Besides being a base material, it may be used as a plasticizer for polyvinyl resins . . . as a modifier for phenolic resins . . . as an adhesive base . . . as a latex for coating and impregnating.

Hycar may be just what you're looking for to solve a problem, or get a new product to market, profitably. Complete information and technical advice are yours for the asking. Just write Dept. HH-10, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio.

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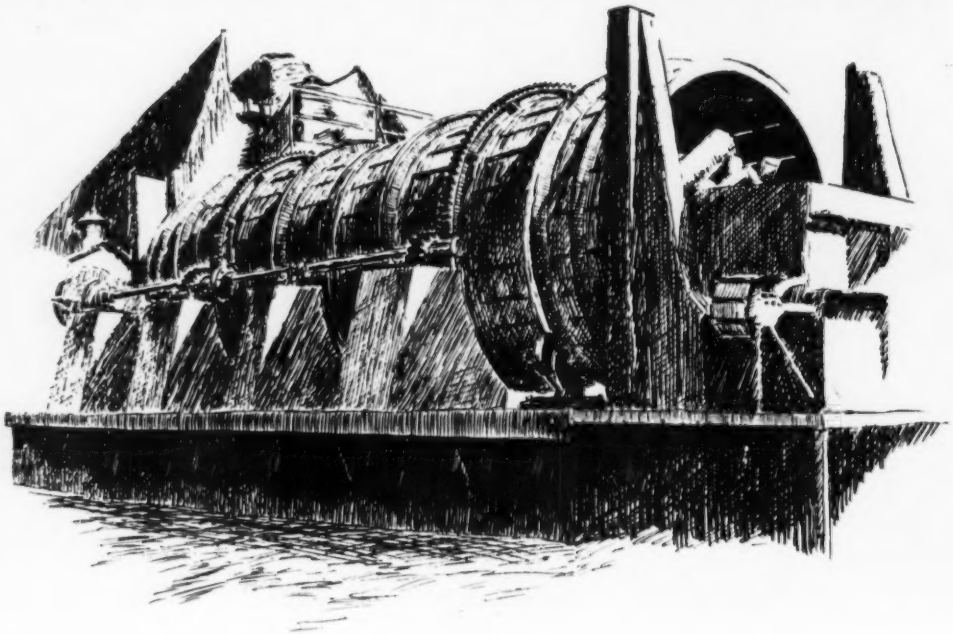
NEWPORT NEWS
WELDED LOG BARKER



Sturdy Construction... Rugged Performance

The Newport News 45-foot welded log barker consists of two slotted drum sections with a total weight of 148,000 pounds. Each section is fabricated from three 1¼ inch steel plate rings welded together in halves. Heavy circumferential stiffener rings are welded on the outside of each section. The barker is equipped with cast steel gears and forged steel rails. After assembly and welding, each section is completely stress relieved.

The rugged performance record of the Newport News barker has proven the soundness of its sturdy one piece construction. Write for additional details.

NEWPORT NEWS
SHIPBUILDING AND DRYDOCK CO.
NEWPORT NEWS, VIRGINIA

YOU ASKED FOR IT...

with letters, phone calls and requests to our field engineers

Here's the

ElectroniK Moist-O-Graph

Paper manufacturers from every point of the compass have been demanding this new, improved Moist-O-Graph . . . incorporating the famous *ElectroniK* Potentiometer in circular chart form. And here it is . . . ready to continue the pace-setting performance of its mechanical counterpart in 64 installations made since the war.

The *ElectroniK* Moist-O-Graph provides the means for producing consistent moisture content with substantial savings in steam, manpower and machine shut-downs . . . all so very important in the search for lower operating costs.

In addition to signaling and recording, this instrument is now available as an automatic controller . . . to regulate dryer conditions and maintain desired moisture content.

This is the news you have been waiting for . . . call in your local Honeywell engineer for further information!

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BROWN INSTRUMENTS DIVISION
4510 Wayne Ave., Philadelphia 44, Pa.

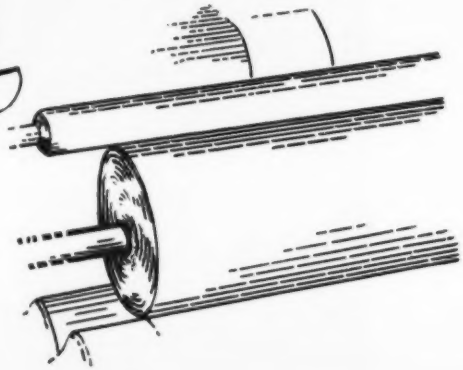
Offices in 73 principal cities of the United States, Canada and throughout the world

WORLD'S LARGEST ORGANIZATION FOR ADVANCED INSTRUMENTATION AND CONTROL

Honeywell — *Advanced Instrumentation* FOR THE PAPER INDUSTRY — BROWN INSTRUMENTS

How well are you equipped for PAPER or TEXTILE Converting

With steadily expanding developments in new products and the return to competitive selling conditions, the plant with the most adequate range of processing equipment is in a most advantageous position. The WALDRON machine lines shown at left are available for efficient processing of practically any type of product embodying a paper or fabric base. How many of the new types of such products can your present equipment handle? How well are you prepared to keep apace with the expanding variety of converted specialties?



Whether you are interested in one or more of the complete machine lines shown above or in individual units to complete your present lines, our capable engineers can help you to achieve streamlined operation for greater speed and economy. Your inquiries will be welcomed.

Coating Machines
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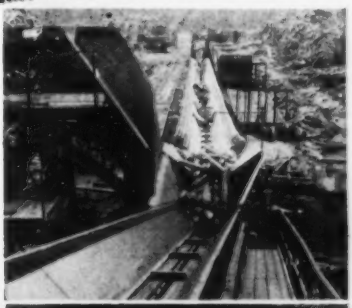
REX Pulp Mill Chains

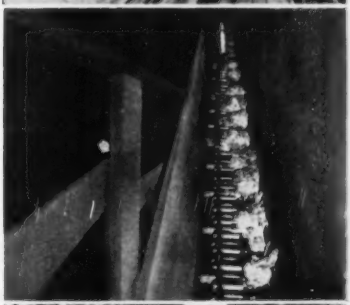
Maximum wear resistance and the *ultimate* in *shock resistance* are built-in features of all Rex Pulp Mill Chains. These quality chains are designed for dependability . . . for long-lasting service under every type of operating condition. Right through the mill, there's a Rex Chain that's right for every operation from log haul to the digesters.

With standard Rex Chains, you can forget about production hold-ups due to drive or conveyor failures. Rex Chains keep going under loads and operating conditions where ordinary chains would quickly fail.

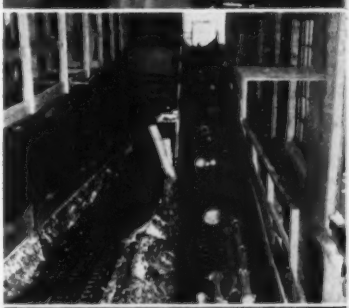
For complete information and selection assistance, call your Rex Field Office or write direct to Chain Belt Company, 1605 West Bruce Street, Milwaukee 4, Wis., for your copy of Catalog 48-27.



This wood yard conveyor uses husky Rex Mill Refuse and Log Chains. Designed with alternating cast block links and steel side bar links, these chains provide a large sliding surface and maximum bearing area.



Rex H-Type Conveyor Chains are used in this refuse conveyor. Operating in shallow troughs, these chains with their great width assure large capacity at low speeds. Wide wearing shoes, reinforced barrel faces and vertical lugs on the side bars provide extra wear resistance.



One of the most popular chains in the wood room is husky Rex Combination. Inside block links of malleable iron or Rex Z-Metal and high carbon steel side bars assure plenty of wear-resistance. Chain links can be turned over when wear does take place, assuring double life.

Plenty of drive for the barking drum is assured by sturdy Rex Chabelco Steel Chain. Combining relatively light weight with high strength, it withstands the severe vibration and shocks . . . lasts longer.

CHAIN BELT COMPANY — REX — DRIVE AND CONVEYOR CHAINS

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now available from stock

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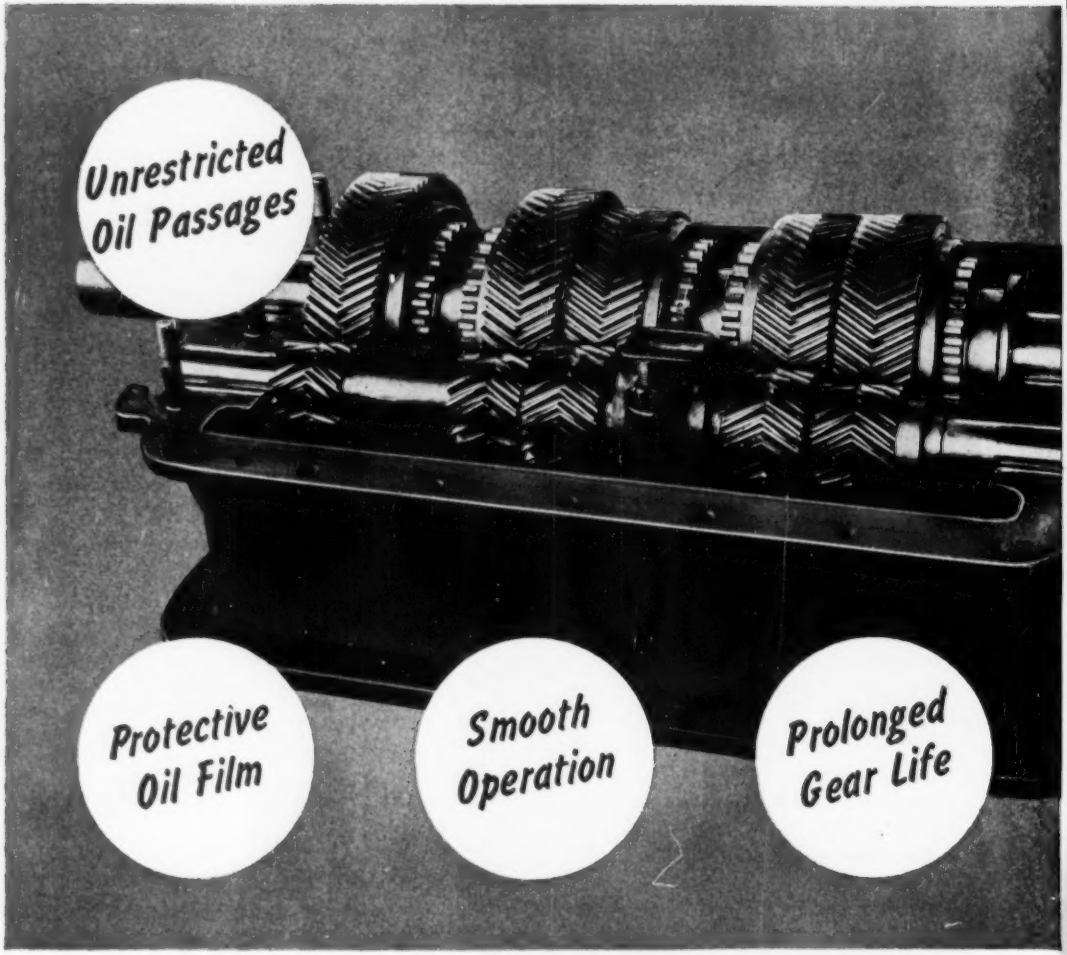

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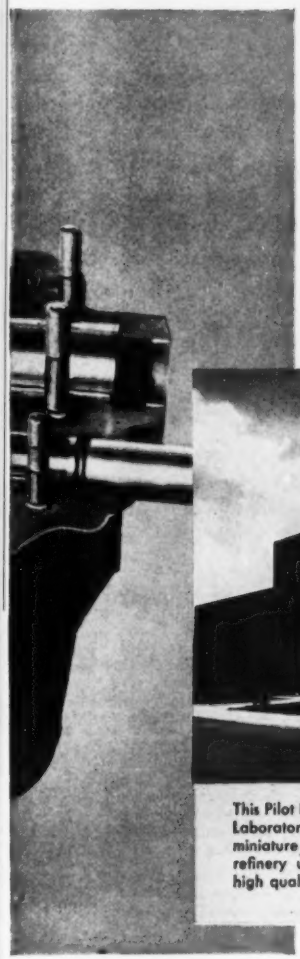
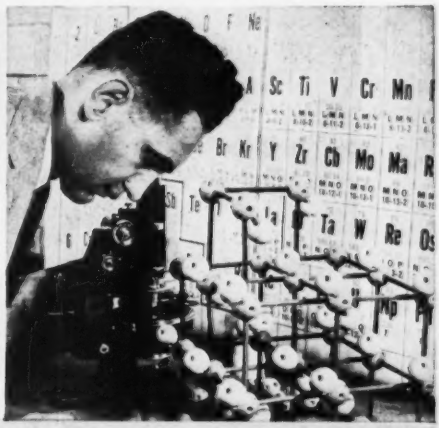
Withstands Punishment Gear Efficiency



Inside a Speed Reducer, the lubricating oil is being churned and temperatures run high. This promotes oil oxidation, and formation of acidic compounds, gum and sludge. The result is lower efficiency, accelerated bearing and gear wear—perhaps even complete failure.

With Sinclair RUBILENE as the lubricant, the danger of insufficient lubrication and excessive wear are no longer a worry. Product of the most modern refining processes, RUBILENE resists oxidation, thereby retarding the formation of damaging acidic compounds, gum and sludge. It is non-foaming, too. So, with a constant flow of protective oil to bearings and gears, RUBILENE stands up under the day-in-and-day-out continuous gear operation . . . without frequent need for draining or replacement. Try Sinclair RUBILENE Oils.

This Pilot Plant, part of the great Sinclair Research Laboratory at Harvey, Ill., provides space for six miniature operating replicas of commercial-sized refinery units. Continuous research explains the high quality of RUBILENE and other Sinclair Oils.

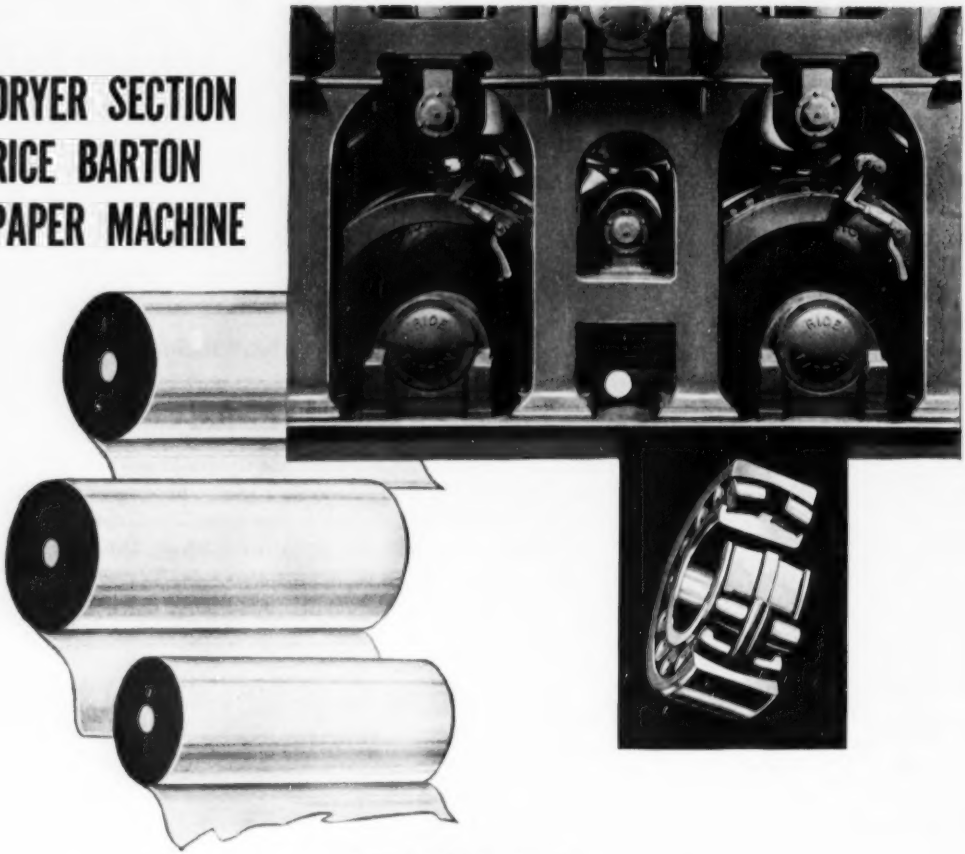


Making a study of crystal structure of catalysts, this Sinclair researcher at Harvey uses physical chemistry to develop refinery techniques in a never ending effort to bring industry better petroleum products at lower costs.

INDUSTRIAL OILS

FOR LUBRICATION COUNSEL, OR YOU MAY WRITE TO SINCLAIR REFINING COMPANY, 630 FIFTH AVE., NEW YORK 20, N. Y.

DRYER SECTION RICE BARTON PAPER MACHINE



Completely Equipped

WITH LOW-MAINTENANCE SKF BEARINGS

The new paper machine manufactured by the Rice Barton Corporation, Worcester, Mass., for the Brown Company of Berlin, N. H., is a well-designed unit. In the dryer section—where high temperatures create special problems and uninterrupted service is a "must"—Rice Barton has installed SKF Bearings on all dryer cylinders, felt rolls, and idler gears.

SKF Bearings are built to take the heavy stresses set up by the dryer cylinder weight and felt tension. And SKF's rocker mount housing design permits unrestrained cylinder expansion and contraction—with maintained location of cylinder center. Because they are self-aligning and require only a minimum of maintenance and lubrication, SKF Bearings have proven their superiority in long years of service.

Many paper machine manufacturers rely on SKF, the pioneer anti-friction bearing company in the paper industry. Our engineers would be glad to help you with your particular bearing problem. 6607

Write to: SKF Industries, Inc., Philadelphia 32, Pa.

Paper Equipment Bearings engineered by SKF

Weyerhaeuser is in the business of growing trees . . . looking ahead to a continuous, never-ending supply of timber.

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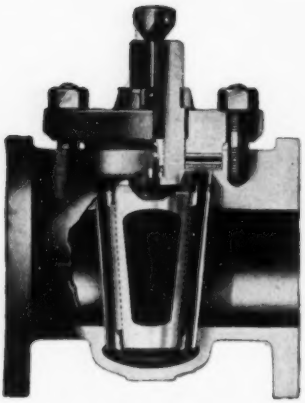
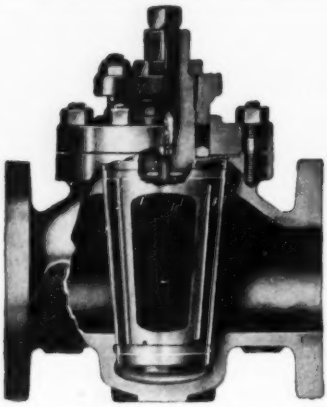
And that is why in cooperation with others in industry and government, Weyerhaeuser helps maintain a vast network of look-out towers, forest patrols, radio and telephone communications, tank trucks and roads. Trained fire-fighters are always available. Forest fire prevention today and tomorrow is in the public interest for the present and the future.

PULP DIVISION

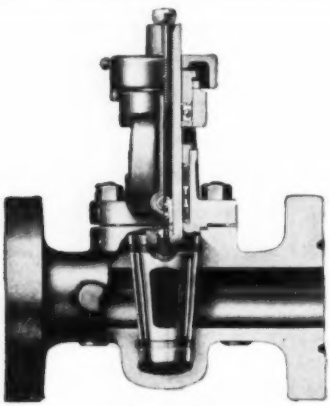
WEYERHAEUSER



Single Gland Type



Regular Gland Type



Ball Bearing Type

FOR HANDLING

Acids... Solvents... Sludges...

and other troublesome liquids—

USE WALWORTH LUBRICATED PLUG VALVES

When handling acids, condensates, dyes, oils, solvents, solutions, slurries and hundreds of similar "troublesome" liquids, you get better control, more dependable service and lower operating costs with Walworth Lubricated Plug Valves.

These valves have proved their ability to give easy operation . . . fast action . . . tight shut off . . . greater protection against corrosion. Turning is smooth and easy; just a ¼ turn from full-opening to full-closing. Moreover, Walworth Lubricated Plug Valves are tightly sealed against leaks — *whether open or shut.*

Walworth Lubricated Plug Valves are available in sizes ½" to 26" for pressures from 125 to 5,000 psi, and for vacuum requirement. For further information about Walworth's Complete Line of Lubricated Plug Valves, see your Walworth distributor or write for Catalog No. 46L.

WALWORTH

valves and fittings

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Heppenstall E. I. S. Chipper Knives

When you install Heppenstall E.I.S. Chipper Knives you're bound to get *more* clean cut, uniform chips. The reason is simply this: Heppenstall Knives *stay sharp longer!* They produce greater chip yield with fewer oversized or bruised chips, less sawdust waste.

Under the most severe service conditions, these solid alloy steel chipper knives retain keen edges longer . . . operate more hours between grinds because they're made from Heppenstall's own Electric Induction Steels—forged, heat treated, precision finished to give maximum service.

All of these proved advantages, plus the economies of Heppenstall's Standard Slot Dimensions, mean improved chip production at lower production costs.

Why not order a set of Heppenstall E. I. S. Knives for your chipper today?

60th ANNIVERSARY 1889 1949

* Write for your free copy of Heppenstall's handy, new wall card outlining correct chipper knife grinding procedure.

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PITTSBURGH 1, PA.

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West Coast Representative
RAY SMYTHE
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Product and Process Research for the Paper Industry

What is Dynomizing? It is a better, less expensive and more efficient way of defibering pulp or waste paper.

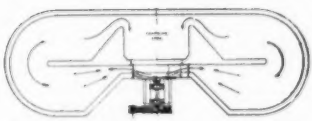
The heart of all DynoMachines is the DynoPeller. The DynoPeller is a disc which is lined on its concave side with rough, hard carbide particles.

As the DynoPeller rotates, it creates a suction at its center which pulls the stock toward it. Centrifugal force then causes the stock to flow rapidly across the rough carbides.

This effective dynomizing action completely disintegrates the stock. Each fiber is completely separated from its neighbor while maintaining its original length.

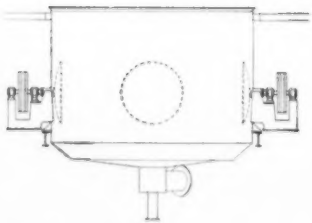
There are four types of DynoMachines for either batch or continuous operation. Let us tell you how these machines make better pulp from a given grade of stock and make it at less cost. Write for further information.

The DynoPeller



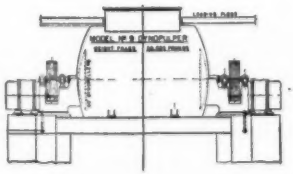
The DynoChest

. . . has an elongated vat with a midfeather and is equipped with one DynoPeller. It will process broke or slurry. Used for either batch or continuous operation.



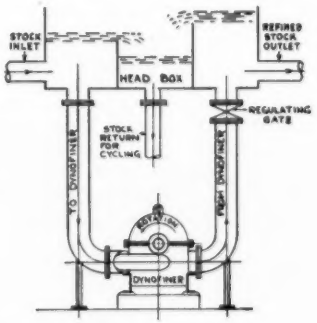
The QuatroPulper

. . . is composed of a vertical circular vat, open at the top for charging and equipped with four DynoPellers. Primarily designed for large capacities. Stock may be charged all at once. Used for either batch or continuous operation.



The DynoPulper

. . . is composed of a horizontal circular vat with charging area at its top and equipped with two DynoPellers. Stock charged all at one time. Used for either batch or continuous operation. Available also in laboratory sizes.



The DynoFiner

. . . is equipped with either four or six small DynoPellers. It is used in a continuous operation and completely separates fiber bundles from slush stock.

FARREL ROLL ACCURACY starts with this blueprint

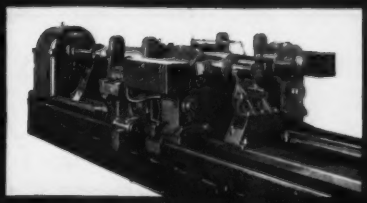
During almost a century of roll making, Farrel has developed casting methods and equipment that have a great deal to do with the accuracy of a Farrel roll.

Because rolls are cast so true and with such accurate contours, they require a minimum of machining to finish to size. Even large rolls are reduced in diameter by only a fraction of an inch in the combined operations of turning and grinding. This casting accuracy is responsible for the full uniform depth of hard chilled surface being retained nearly as cast—an assurance of long roll serviceability.

Grinding is done on specially designed, two-wheel roll grinders, equipped with an automatic crowning device which unerringly produces the correct shape and amount of crown.

In the *world's largest specialty roll shop* at Ansonia, Farrel has the experience and equipment to produce accurately shaped rolls from 5" to 72" in diameter and up to 312" face. Write for full information.

FARREL-BIRMINGHAM COMPANY, INC. • ANSONIA, CONN.
Plants: Ansonia and Derby, Conn., Buffalo, N. Y.
Sales Offices: Ansonia, Buffalo, New York, Boston, Pittsburgh, Akron, Chicago, Los Angeles, Tulsa, Houston



Farrel-Birmingham

A RESEARCH CORPORATION COTTRELL

will save you $1000 to $1500 worth of salt cake every day

The engineer from Research Corporation spoke confidently. He had studied the equipment layout, and noted that the mill had a capacity of 1,000 tons of pulp per day. From his experience and specialized knowledge he knew that he could safely anticipate a minimum recovery of 100 pounds of salt cake for each ton of pulp produced—total: 50 tons of salt cake per day—value: $1,000.00 to $1,500.00 per day dependent upon salt cake cost prevailing at the plant.

Performance like this is the result of over 35 years of experience combined with careful engineering appraisal, attention to details and a remarkably efficient method. These, plus equipment which gives recoveries of 90 to 99%, are responsible for outstanding records of recovery.

If you are losing your chemicals through the stack in a soda or sulphate mill investigate the Research Corporation Precipitator.

RC-108

Research Corporation Installations

47 CARBON BLACK PLANTS
200 METALLURGICAL INSTALLATIONS
203 ACID PLANTS • 34 PAPER MILLS
262 DETARRING INSTALLATIONS
195 POWER STATIONS
71 STEEL PLANTS • 95 OIL REFINERIES
AND MISCELLANEOUS INSTALLATIONS

RESEARCH CORPORATION

405 Lexington Avenue, New York 17, N. Y.
122 South Michigan Avenue, Chicago 3, Illinois

no more hand-me-downs

Stainless sheet and strip production is coming of age—no longer made on the hand-me-downs of carbon steel production, thanks to modern advances in strip mill practice. CRUCIBLE, drawing on this progress and on generations of *specialty* experience, has carried stainless development even further by building the world's first complete mill designed *specifically* for hot and cold rolling of stainless steels. In this $18,000,000 project, every building, every piece of equipment, has been built to incorporate the *best* of accepted modern practice, PLUS exclusive features designed by CRUCIBLE's industry-famous technical staff.

Here stainless sheet and strip is produced in widths from ½″ to 50″ inclusive, in all gauges, grades and finishes. This new and important contribution to the production of stainless steel is vital news to every processor of stainless steel products. For now CRUCIBLE, one of the pioneers in stainless steels, rounds out an integrated program of stainless in all its forms—sheets, strip, plates, bars, wire, forgings, castings, and tubing (manufactured by the new subsidiary, Trent Tube Co.) To this program CRUCIBLE has applied its *specialty product* methods of quality control, methods that have given CRUCIBLE leadership in special purpose steels for half a century. Data sheets for all grades are yours for the asking. Your inquiries will be welcomed.

CRUCIBLE STEEL COMPANY OF AMERICA
405 Lexington Ave., New York 17, N. Y.
Branches, Warehouses and Distributors in Principal Cities

for stainless sheet and strip

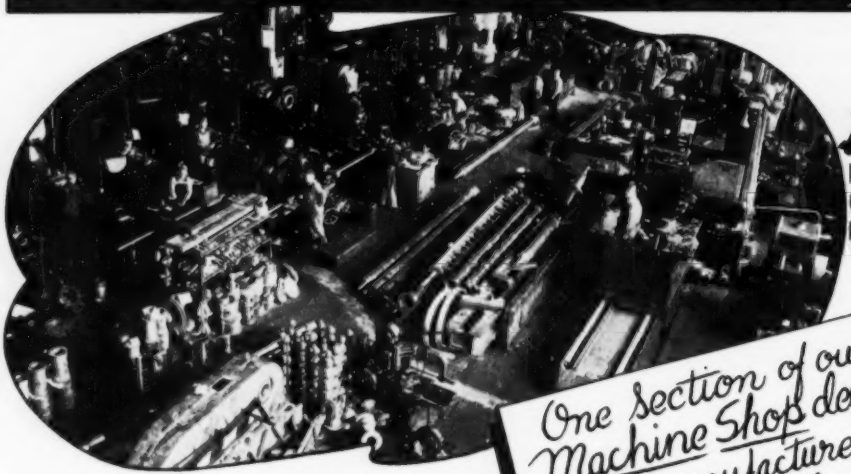
CRUCIBLE first name in special purpose steels

hot and cold rolled **STAINLESS SHEET AND STRIP**

STAINLESS • HIGH SPEED • TOOL • ALLOY • MACHINERY • SPECIAL PURPOSE • STEELS

MURCO

PAPERMILL AND WOODROOM EQUIPMENT

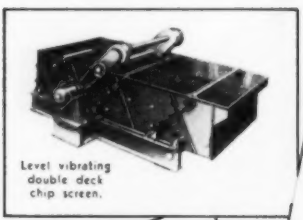


Backed BY OVER 60 YEARS EXPERIENCE

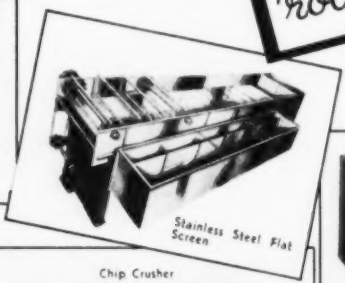
One Section of our Machine Shop devoted to the manufacture of papermill and woodroom Equipment!

The above is one section of our modern machine shop engaged in process no a wide line of paper mill and woodroom equipment. In addition to modern machine facilities we offer the paper industry a complete service including engineering, pattern making, and foundry operations—all top quality, because of over 60 years close association with the needs of the paper manufacturers.

Consult Murray when seeking modern equipment to meet today's need for high quality production at lower cost.

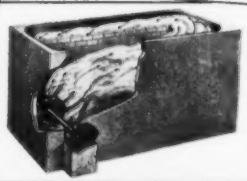


Level vibrating double deck chip screen.



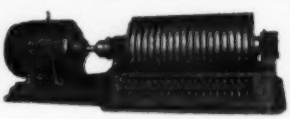
Stainless Steel Flat Screen

Stainless Steel Pipes and Fittings



Horizontal Axial Flow Agitator

Pulp Wood Chipper

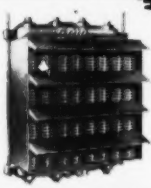


Chip Crusher

Quick opening gate valve

Windershaits

GRID UNIT HEATERS AND BLAST COILS

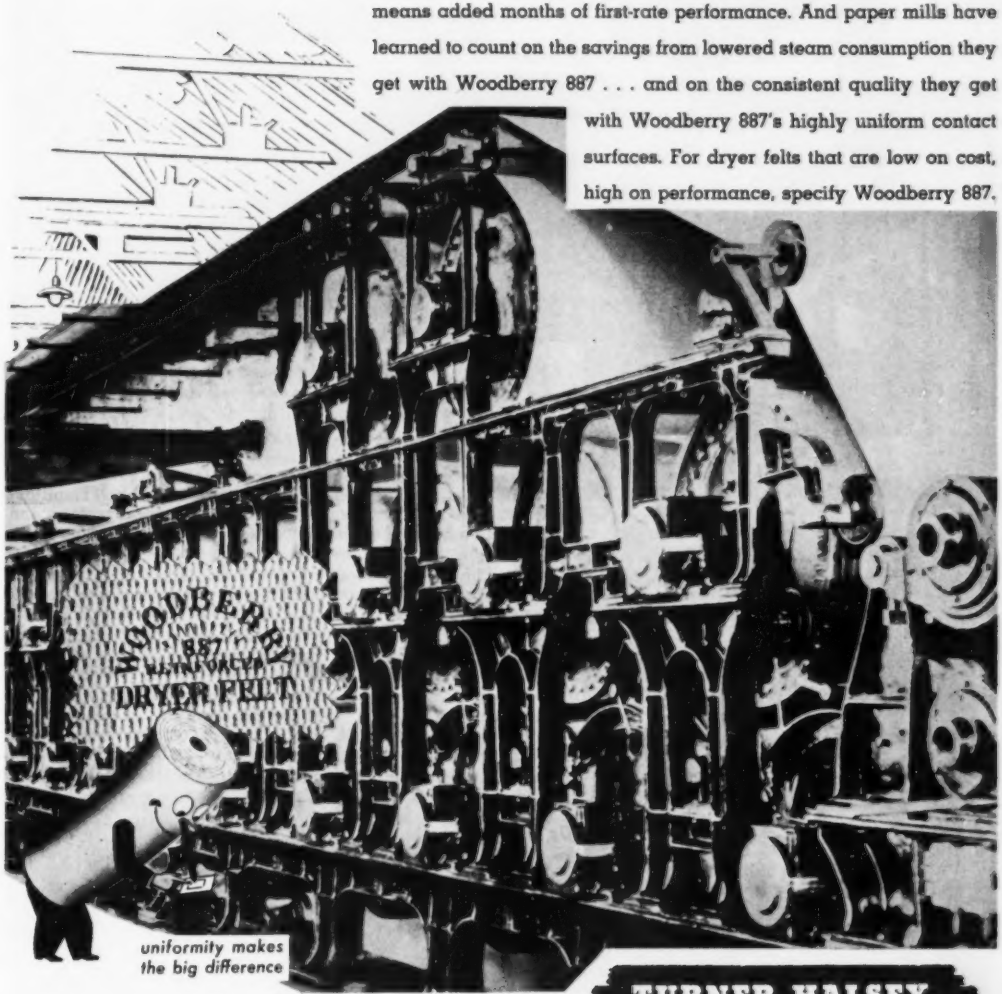


For heating, drying, and processing equipment, GRID cast iron construction assures trouble-free service . . . one piece construction high test cast iron heating sections . . . no soldered, brazed or welded sections . . . no electrolysis to cause corrosion, breakdowns, leaks, or heating failures . . . may be used on steam pressures up to 250 lbs. Send for catalog, engineering data, and capacity tables.

D. J. MURRAY MANUFACTURING CO. WAUSAU WISCONSIN

Reinforced for Lower Costs Woodberry 887 Dryer Felts

You'll find smoother operation and longer wear in these reinforced heavy-duty dryer felts. Woodberry 887's patented feature—asbestos yarns woven at scientifically determined intervals into their face—means added months of first-rate performance. And paper mills have learned to count on the savings from lowered steam consumption they get with Woodberry 887 . . . and on the consistent quality they get with Woodberry 887's highly uniform contact surfaces. For dryer felts that are low on cost, high on performance, specify Woodberry 887.



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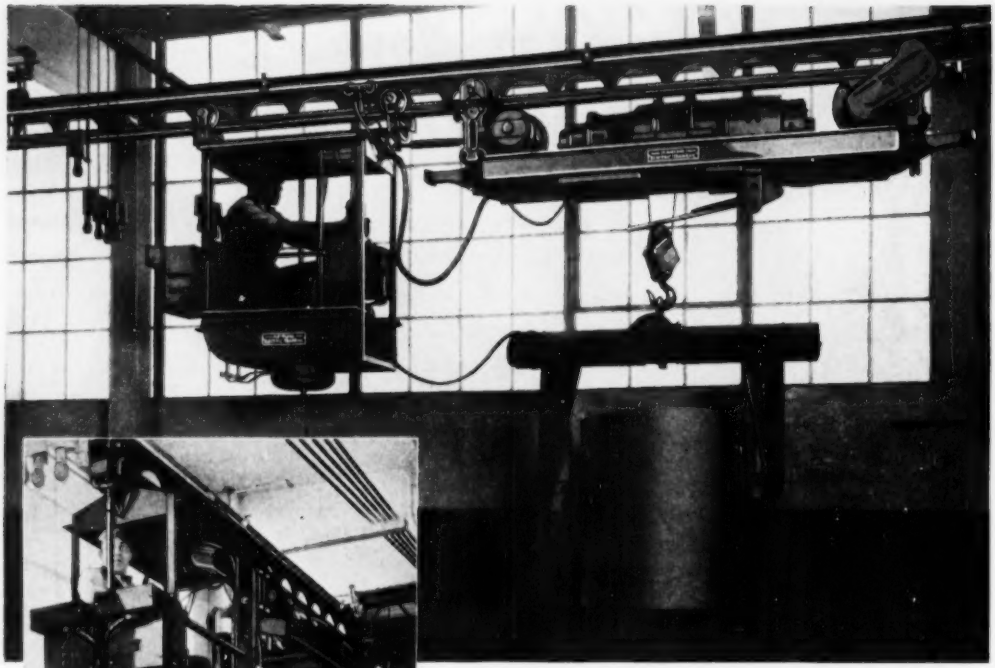

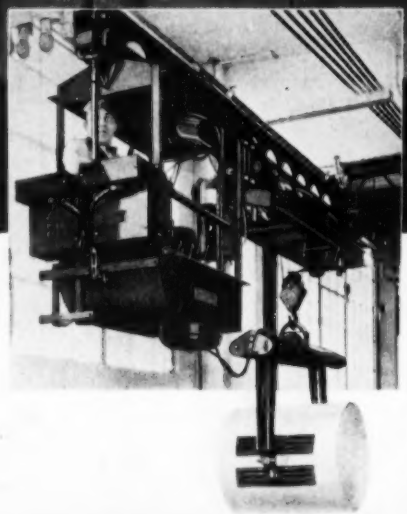

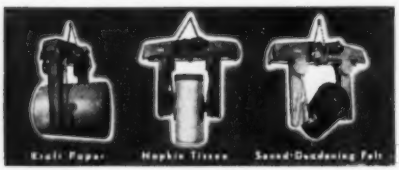

HEAVY ROLLS HANDLED
. . . in Any Position

Whether you store your rolls horizontally or vertically, they can be handled easily with a Cleveland Tramrail Roll Handling System. The rolls may be picked up from a vertical position and placed in a horizontal position or vice-versa. They may be taken to and from any part of the mill quickly by the overhead route.

The Cleveland Tramrail roll grab will handle all grades and thicknesses of paper, from light crepe and tissue paper, sound-deadening felt to kraft and hard box-board.

Roll grabs have been made for various size rolls. A grab recently built handles rolls from 24 inch minimum to 60 inch maximum diameter in lengths to 84 inches and weighing up to 6,000 pounds.

A great advantage of the Cleveland Tramrail system is that rolls may be picked up, delivered and set down by the cab operator without his ever leaving the cab. All motions of the grab and motor-driven carrier are controlled by means of controllers in the cab.

Many mills are expediting the handling of rolls at a great savings with Cleveland Tramrail.

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THE CLEVELAND CRANE & ENGINEERING CO.
7101 East 287th Street, Wickliffe, Ohio

CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT

WAX COATINGS IMPROVED with New Du Pont Alathon

TRADE-MARK

They lose tack, get harder, resist smearing!

They become more grease resistant!

And they do a better selling job!

NOW—with new Du Pont "Alathon" Polythene Resins, you can greatly improve your wax paper coatings or develop new and different ones. Blends of "Alathon" with paraffin or microcrystalline waxes produce coatings with greater flex life and lacquer-brilliant finishes.

Offers New Markets

Du Pont "Alathon" opens up new possible uses for wax coatings. For instance, "Alathon" in soft microcrystalline waxes largely eliminates tack and gives a tough, flex-resistant, glossy coating material. Which means you can use these soft, amorphous waxes where you never could before. Paper coated with blends of "Alathon" and wax has much greater sales appeal—longer shelf life, freedom from blocking and better all-around protective qualities.

Still Another Use

In addition to using them as wax modifiers, you can also coat paper with *pure* "Alathon" Polythene Resins. They are water, chemical and solvent resistant, low in M.V.T., tasteless, odorless and non-toxic. Paper coated with "Alathon" stands up where paper alone fails.

See what Du Pont "Alathon" can do for you. Write today for booklet on "Alathon" Polythene Resins—it's filled with facts and suggested applications for this new paper coating material. Du Pont will be glad to work with you on applications in your plant.

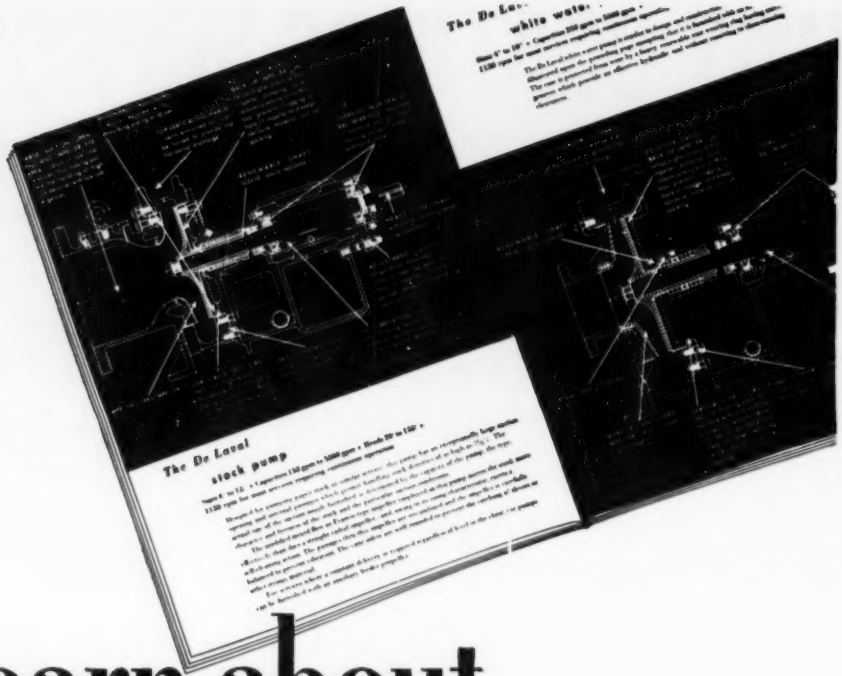
Some suggested uses for coatings of "Alathon" and wax blends—how many more can you think of?
HOT DRINK CUPS
FROZEN FOOD PACKAGES
BUTTER AND LARD CARTONS
SOAP WRAPPERS

AMMONIA DEPARTMENT

E. I. du Pont de Nemours & Co. (Inc.)
Wilmington 98, Delaware

DU PONT

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*



learn about

the latest improvements in paper mill pumps

Send for your copy of this new De Laval pulp and paper mill pump catalog and get all the facts about the new line of De Laval pumps especially designed for handling paper stock, white water, liquors, clays and fillers.

As a practical, paper mill man you'll appreciate the many exceptional features of these new pumps.

For example:

- The stock pumps are designed for handling extremely high densities.
- Renewable liners protect surfaces subject to wear or corrosion.
- Shafts, sleeves, bearings and other parts are interchangeable.
- All working parts can be inspected or removed without disturbing piping connections.

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TURBINES • HELICAL GEARS • CENTRIFUGAL BLOWERS AND COMPRESSORS
CENTRIFUGAL PUMPS • WORM GEAR SPEED REDUCERS • IMO OIL PUMPS

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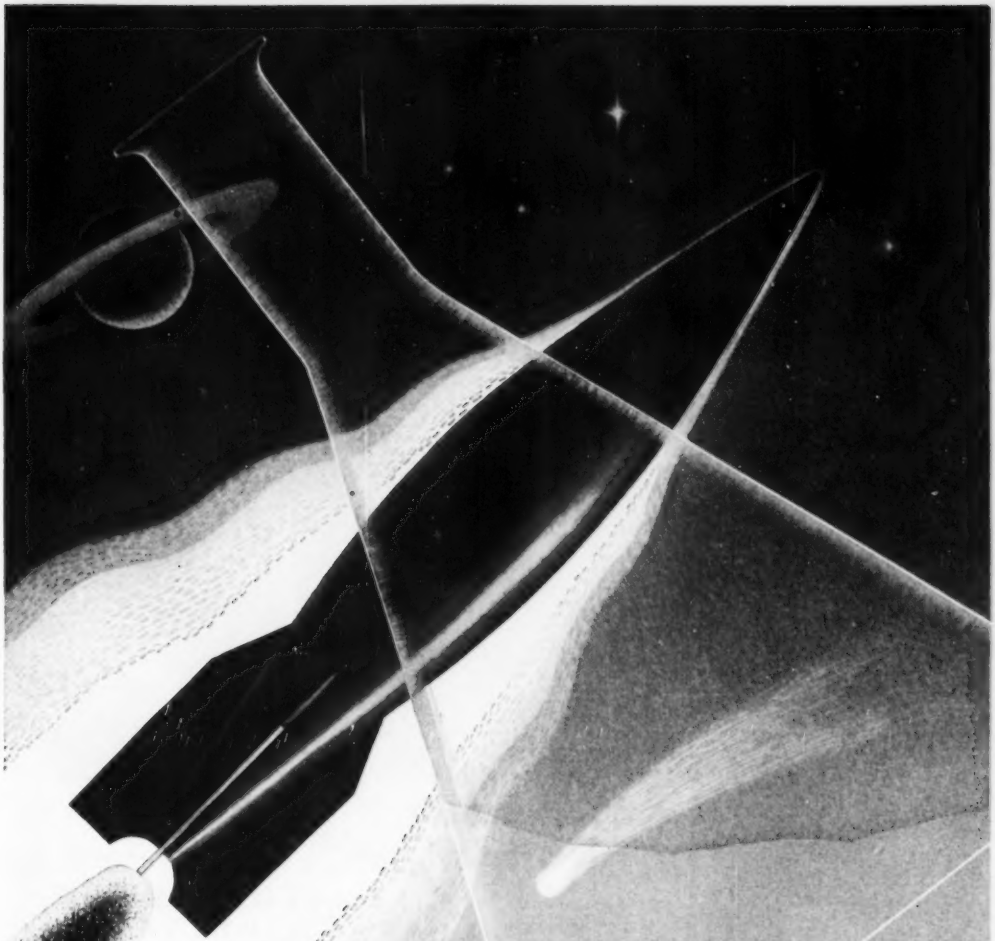

science knows no frontiers

In both pure and applied science, men are forever peering beyond the far horizons of the known. Practical "Virginia" chemists diligently search for new applications of the basic industrial chemicals for which they have already developed such a wide field of usefulness. They would like the opportunity of investigating possible adaptation of these versatile chemicals to *your* products or processes. You have nothing to lose—and you may gain much—by inviting them to do it.

"Virginia" **Zinc Hydrosulphite** (ZnS_2O_4) is *high test*. It is expressly prepared as a brightening and decolorizing reagent for the pulp and paper industry. Send for our folder on "Virginia" **Zinc Hydrosulphite** today. VIRGINIA SMELTING COMPANY, West Norfolk 3, Virginia.

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INCREASE PRODUCTION ...LOWER MAINTENANCE COSTS

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WATERSHED LEATHER BELTING

Because, Rhoads TANNATE Leather Belts are carefully controlled from the raw hide to the finished product—and are built for the specific jobs they are to perform, you are assured of reliable, long-life performance that **increases production and lowers maintenance costs.**

TANNATE Leather Belts carry full load when damp; provide maximum grip with minimum tension, thus assuring high overload capacity; have great flexibility which enables them to operate efficiently over small pulleys at high speeds; are resilient to absorb shock loads; and are resistant to humidity, high temperatures, machine oil and many chemicals.

Write for details about these **production-increasing, cost-reducing** TANNATE Belts and your copy of "How to Select, Install and Maintain Modern Leather Belting". . . on your business letterhead, please.

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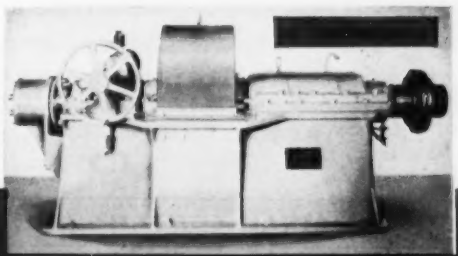
"To date, we have effected approximately 10% increase in production with improved formation and physical properties. One especially notable result has been that the sizing is greatly improved due to the more uniform degree of refining which we are now getting."

The foregoing was taken from a letter from a new Sutherland user in South Africa, about 10,000 miles from Trenton, who was obviously delighted with the performance of their small 32" refiner. It's exactly what we've been telling mills for years, i.e., **Increased Production, Better Formation, Higher Strength, Improved Finish,** etc. guaranteed by Sutherlands. Mills now considering stock preparation equipment, which are much closer to our free technical service, should take particular note. **P.S. Many have already learned what this South African mill just found out.**



SUTHERLAND REFINER CORPORATION
TRENTON, NEW JERSEY

Manufactured in the United States by Valley Iron Works Co., Appleton, Wisconsin • Sutherland Refiner Ltd., Windsor Hotel, Montreal, P. Q.

NEW TWISTS ON AN OLD TALE

The handling and storing of chemicals is to you an old tale. As it is to us.

However, DIAMOND ALKALI continuously studies the problem of unloading, handling and storing. From time to time, it develops improved methods. Often special means are devised for solving individual problems which arise out of local conditions.

Your DIAMOND salesman is posted on these new angles. It isn't something he would bring into the conversation just cold. But if you will ask him, you will find he knows a lot about chemicals beyond the mere selling of them. Next time you have a problem, please feel free to put your DIAMOND salesman's broad knowledge and the facilities of DIAMOND's Technical Service staff to work for you.

DIAMOND ALKALI COMPANY • CLEVELAND 14, OHIO

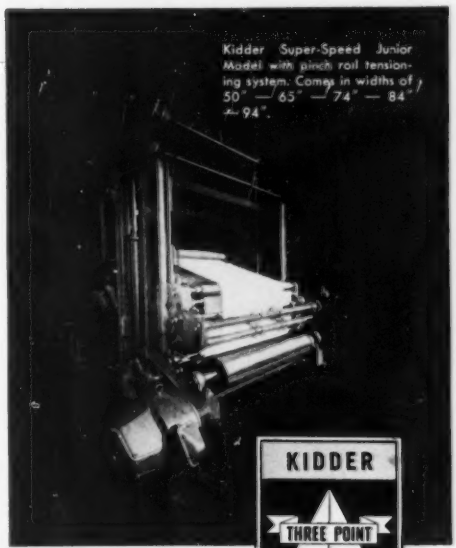
DIAMOND ALKALI CHEMICALS

Kidder Super-Speed Slitter with all-electric tension control. This control employs an electric motor operating as a generator in order to provide braking power for correct tensioning. Power generated is fed into main driving motor, thus cutting down on current consumption. Extremely accurate tension is maintained by this device.

CONSISTENTLY CLEAN CUTTING

...at 2,000 FPM!

Kidder Super-Speed Slitters feature the famous "scissors-action" shear cut principle because no other type of cutter gives such clean cutting day after day on the job. No other cutter performs as well for "mile after mile" of cutting because the hardened steel cutters have a self-sharpening effect *as they cut*. The fibres are actually *severed*, not merely crushed apart as in other cutting methods. A special paper spreader opens up the slit directly after cutting, assuring complete severance of fibres before rewinding.



Kidder Super-Speed Junior Model with pinch roll tensioning system. Comes in widths of 50" — 65" — 74" — 84" and 94".

All these advantages are yours when a Kidder Super-Speed Slitter goes to work for *YOU*:

1. Choice of widths . . . 80" — 90" — 100" — 110" — 120".
2. Large roll capacity . . . takes mill roll and rewind roll up to 50" in diameter.
3. Optional tensioning equipment . . . standard equipment is efficient, water-cooled brake . . . automatic electric or pinch roll types available on option.
4. Automatic roll ejection . . . booster quickly ejects roll at end of run.
5. Soft ends and wrinkles corrected . . . by bow bar as web leaves mill roll.

KIDDER
THREE POINT
SLITTERS

give you

1. Clean, Accurate Cutting
2. High Speed, Dustless Operation
3. Easy Separation of Rolls

KIDDER PRESS COMPANY, INC.

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Graybar Bldg., New York 17, N. Y.

MACHINERY SERVICE COMPANY
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FOR TOMORROW'S
SUPERFINISHES...
PERKINS
B. F. PERKINS & SON, INC.
HOLYOKE · · · MASSACHUSETTS

Wanted:

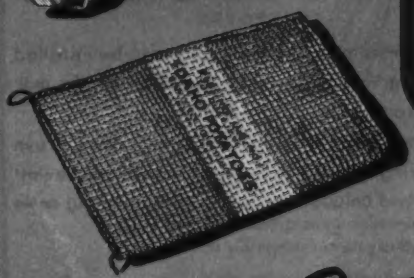
Fastness to water bleeding

Found:

Du Pont Dyes

Pontamine* Fast Yellow BBL Conc. 125%
Pontamine* Fast Orange MRL Conc. 125%
Pontamine* Fast Scarlet 4BS Conc. 150%
Pontamine* Brown D3GN Conc. 125%
Pontamine* Orange R Conc.
Du Pont Purpurine 4B Conc.
Pontamine* Fast Blue 4GL Conc. 150%
Pontamine* Fast Blue RRL Conc. 175%
Pontamine* Deep Blue BH Conc.
Pontamine* Black E Double

Selected Basic Dyes on Unbleached Pulp



Careful selection of these dyes, and at times the use of mordants such as Du Pont Mordant DP and BS will give you specialty papers with colors which will not run or stain other items.

Our Technical Staff is always glad to help you find the right dyes to meet your specific requirements. E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Division, Wilmington 98, Delaware.

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Du Pont Dyestuffs

DU PONT

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For FINCH, PRUYN & Company, Inc. GLENS FALLS, New York

an *all-aluminum* installation of modern

ROSS Air Systems

Finch, Pruyn Air Systems Include:

Ross Machine Hoods of latest panel construction

Ross Heating and Ventilating for entire machine room

Ross Bottom Felt Supply System

Ross-Briner Economizer using waste vapor to provide heat for air and fresh water

This remarkable Finch, Pruyn & Company, Inc. installation represents a notable innovation in modern mill equipment. Among its unusual features is the fact that all sheet metal used in the construction is of aluminum.

The use of aluminum permits most of the equipment to be installed on the roof, thus conserving valuable working space within the mill. No alteration to existing roof supports was required.

Ross Engineering is proud of its long association with Finch, Pruyn & Company, Inc. in supplying its air handling equipment—the newest of which is this complete and unique installation that is making news throughout the industry.

ROSS SYSTEMS

J. O. ROSS ENGINEERING CORPORATION

MANUFACTURERS OF AIR PROCESSING SYSTEMS

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ROSS ENGINEERING OF CANADA, LIMITED VILLE LASALLE, CAN. • CARRIER-ROSS ENGINEERING COMPANY, LIMITED, LONDON, ENGLAND

dyestuffs for paper

specially standardized for paper

plus

General's technical field service

and

quick color matching service*

To insure prompt deliveries stocks of dyestuffs are carried in warehouses strategically located throughout the country.

*Color matches are mailed the same day as received . . . formulas sent by wire or telephone at your request.

GENERAL DYESTUFF CORPORATION

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BOSTON • CHARLOTTE • CHICAGO • PHILADELPHIA • PROVIDENCE • SAN FRANCISCO

Read what operators say about Taylor
AUTOMATIC DIGESTER CONTROL

PICTURED below is one of eight Taylor Automatic Sulphite Pulp Digester Control Systems recently installed at the Hawkesbury Plant of the Canadian International Paper Company. Permission to reproduce it on this page is eloquent testimony to the satisfactory performance of the system. Other satisfied customers have practically told you our whole sales story on Digester Control:

"Tailing losses cut to a minimum"

"Bleaching quality improved—a real saving in bleaching chemicals"

"Digester operation greatly improved"

"Many manual operations with their chances of human error are eliminated and operators are free to handle details of their operation more efficiently"

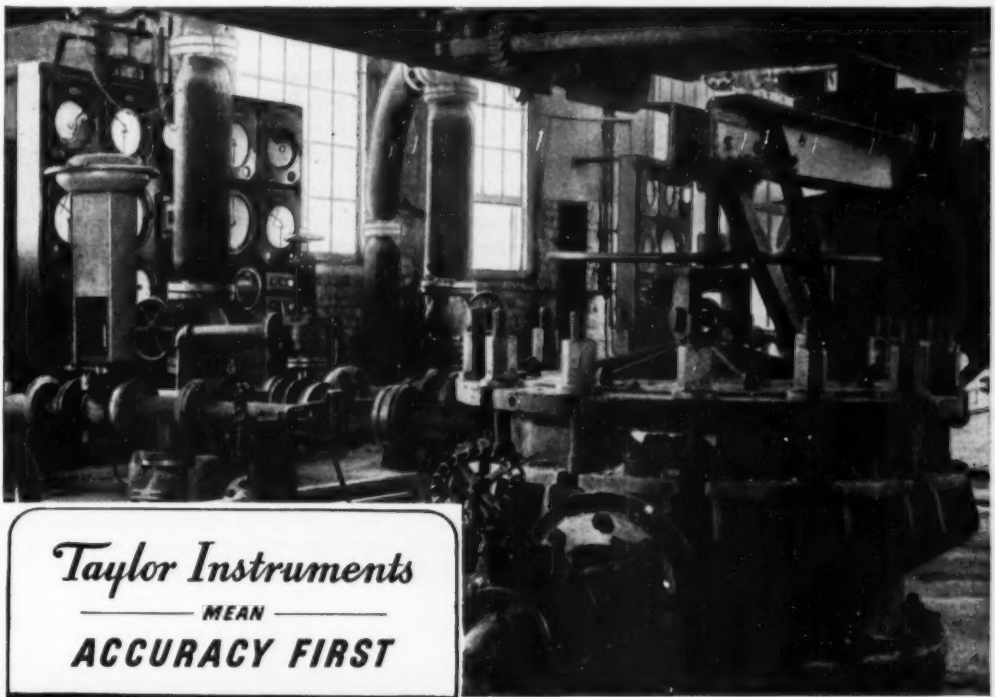
"Cooking time more uniform—we're able to obtain almost exact duplication of previous satisfactory results"

"No trouble with strainers plugging or with digesters not blowing clean"

These Taylor Control Systems are completely automatic for over 90% of the cooking cycle. Their use makes it possible to accurately control the critical rate of temperature rise and hold best suited to the grade of pulp being processed. All this adds up to the lowest possible conversion cost per ton. Ask your Taylor Field Engineer! Or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada.

▪ ▪ ▪

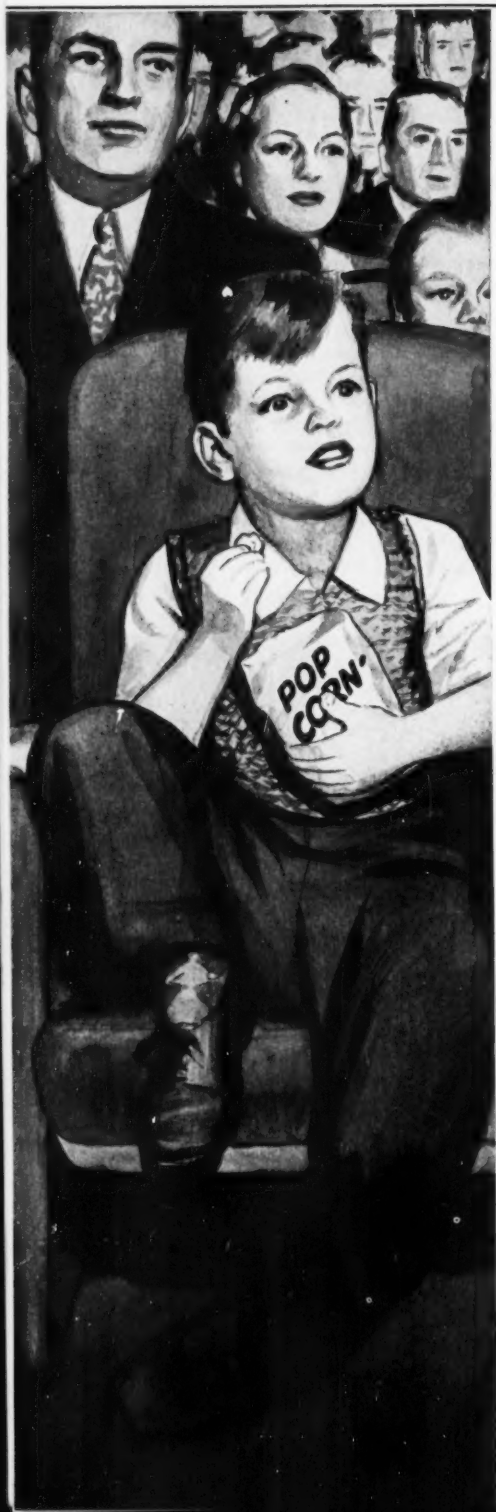
Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.



Taylor Automatic Sulphite Pulp Digester Control System at Hawkesbury plant of Canadian International Paper Co.

Taylor Instruments
MEAN
ACCURACY FIRST
IN HOME AND INDUSTRY

PAPER · · · America's 6th Industry



NOISELESS PAPER POP CORN BAGS

(NEWS ITEM: *It is estimated that 90 million noiseless paper pop corn bags are used annually in New York City movie houses.*)

The movie people have discovered a way to please pop corn enthusiasts without disturbing theatre-goers. They use a new type of noiseless paper bag made of facial-like tissue. To foil noise-loving small fry, holes are punctured along the sides of bags during manufacture, eliminating the usual farewell burst of noise from empty bags. Manufacturers' names on request.

Disposable paper shipping pallets . . . waterproof paper shower slippers . . . flower pots made of paper . . . new uses for paper calling for new standards of lightness and toughness, new standards of quality in performance.

To meet these new responsibilities and new opportunities developed by the Pulp and Paper Industry, the Puseyjones Organization is now devoting itself completely to the design and construction of Paper-Making Machinery built to new high standards of speed and efficiency, and to the modernization of existing machines.

Additional capacity in Metals Fabrication is now available through conversion of facilities formerly devoted to the building of ships.

Puseyjones Engineers will welcome the opportunity to work with you in solving production problems.

THE PUSEY AND JONES CORPORATION
Established 1848. Builders of Paper-Making Machinery
Wilmington 99, Delaware, U.S.A.

THE SIGN OF TRADE MARK SUPERIOR QUALITY

Paper TRADE JOURNAL

TRENDS

Offices of the PAPER TRADE JOURNAL,
Wednesday, September 21, 1949

Pulp Prices and Devaluation

Timing of devaluation to the very hour when fourth quarter wood pulp prices were being announced has temporarily jolted a stabilizing market.

For the most part, customers had been notified by agents or producers what fourth quarter prices would be, and, as shown in World Wood Pulp Markets on *Prices* page, they are pegged at third-quarter levels with two exceptions.

(Swedish unbleached kraft, reported to have moved downward by competition from its $94 third-quarter level, is currently priced at $85. Domestic northern unbleached kraft has been priced upwards from $95 to $97.50 for the fourth quarter.)

Uncertainty as to the effect of currency devaluation on these fourth-quarter prices, expectancy on the part of some consumers that downward revision up to 30 percent may follow, is reported to be affecting current buying as well as new contracts.

A Recouping Move

Describing devaluation as a move which will help producers to recoup their losses of the past months, a major importer states that he expects prices will be unaffected by the various currency devaluations for the most part.

"Indications are at present that there will be no general lowering of prices of pulp due to devaluation," said James Donaldson, president of the Association of American Wood Pulp Importers. "It will take time thoroughly to appraise the complications devaluation has created in the world markets. The short-range reaction may result in some liquidation of odds and ends in poorer qualities; but the long-range view is that it will be inflationary and perhaps lead to higher costs and higher prices."

The *New York Times* of September 20 carried a news item about the devaluation of the Finnmark in conformity with the pound sterling, stating that it was hoped export of woodpulp to the United States would increase. This is interpreted by Finnish agents to mean that because sales in dollars prior to devaluation had yielded an insufficient amount of Finnmarks to make sales in the United States economically attractive—a situation which has been to a great extent corrected by devaluation—a new incentive is given to accept business in the United States at previously established competitive prices. It is further assumed that the devaluation has averted the strong trend towards higher world market prices on woodpulp which was in progress for the last month or so in the British, Continental European, and South American markets and which, it may be assumed, would also have spread to the U.S.A. It is now hoped, the importer stated, that with the uncertainties of currency devaluation and its effect on woodpulp prices out of the way, stability and confidence in the market will gain momentum and forward commitments again be entered into. Customers have been notified that prices quoted for the fourth quarter will be unchanged, he said.

Canadian Devaluation

The consensus of the industry is that Canadian devaluation will in no wise affect the price structure of either the domestic pulp or newsprint markets.

Inventory Reports Confuse

A further element of confusion in the market is wrapped up in the distorted picture of Scandinavian wood pulp inventories. Reasoning that the overheavy stocks which are reported to exist in Sweden and Finland must ultimately depress prices, and that NOW may be the appointed time, some consumers have announced their decision to wait it out.

Selling agents again point up known facts. The so-called heavy inventories are a sum total of all mills, all grades and all qualities. Not every mill had such a problem, and some are entirely cleaned out, particularly on bleached grades. During the last 30 days, the rate of buying has been moving ahead on all world markets with tremendous impetus, with more forward purchasing than at any time during the year. Thus inventories at producing mills have been under big liquidation. Wherever inventories now might be considered heavy, agents say, production adjustments have been made to the new level of consumption so that end of the year stocks will represent only the normal inventory every mill should have. No likelihood of weakness appears in the market because of producers' inventory positions, it is stated.

No Market Break Expected

But for Scandinavian expectation that devaluation was imminent, U.S. prices surely must have risen for the fourth quarter some importers say. Swedish and Finnish quotations to British, Continental Europe and South American markets have already been advanced.

Consumer inventories are known to be at a point where they must now buy to produce. In some instances, supply is reported to be limited to a two-week supply, and orders are wanted for "yesterday" delivery. Moderate reconstruction of inventories also is underway. A steady rate of rush buying is being anticipated by importers for the balance of the year and limited stocks of pulp are understood to be here on assignment to meet requirements of a healthy market.

So long as demand holds up—and the picture looks good through the fourth quarter at least—industry representatives currently see no overall weakness in pulp, and look for growing stability in the paper and board market.

Canadian Newsprint Prices

Cranston Williams, general manager of ANPA, reports that inquiries are being received from publishers from all over the U.S. asking about the prospects of the Canadian manufacturers passing on to their U.S. customers the $10 saving which they obtain from their devaluation of the Canadian dollar.

The publishers recall that in July, 1946, when the Canadian dollar was placed on a parity with the U.S. dollar, having previously been at a 10 percent discount, Canadian manufacturers notified all their customers that they were increasing their price from $68 to $74.80, stating that "this increase only offsets the loss to us caused by the recent revaluation of the Canadian dollar".

In 1946, when the Canadian dollar was at a 10 percent discount, Canadian railroads levied a surcharge of 6 percent on all prepaid freight shipments to U.S. destinations. When the Canadian dollar was placed on a parity with the U.S. dollar, they immediately removed this surcharge. They have now announced that the surcharge of 6 percent is reinstated, effective September 20, the ANPA advises.

Production Indexes

Ratio of production of unbleached kraft paper to potential mill capacity for that product was 59.9 percent for the week ended September 10, compared with 76.5 percent for the preceding week, and with 79.9 for the corresponding week of last year.

Comparative ratios of U. S. paper and paperboard production to mill capacity, as reported by AP&PA, are:

	Sept. 10 1949	Sept. 3 1949	Sept. 11 1948	Sept. 13 1947	Sept. 14 1946
Paper	74.8	‡89.9	78.1	106.9	105.1
Paperboard ..	72.0	89.0	76.0	103.0	101.0

‡ Revised.

Paperboard Production (Tons)

	Sept. 10 1949	Sept. 3 1949	Sept. 11 1948
Production	157,135	193,515	144,410
New Orders	172,955	262,601	162,353
Unfilled Orders ...	380,248	365,609	410,240

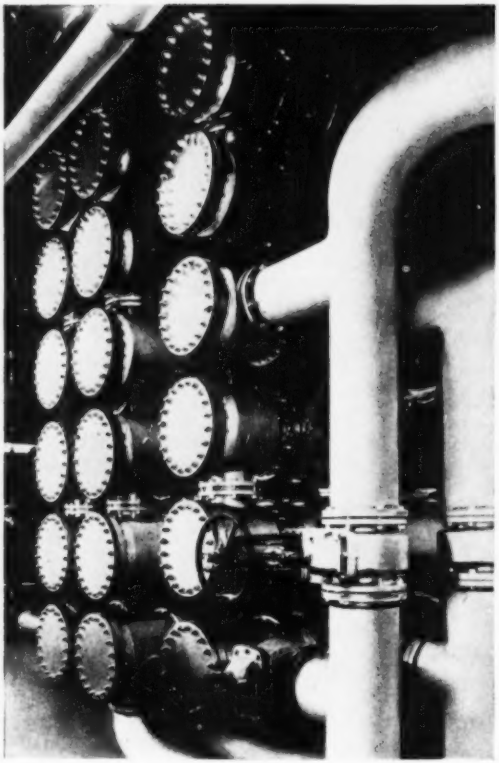
Percent of Activity, Current, 72%; Year, 79%.

General Business Indexes

Index of general business activity for the week ended September 10 eased to 139.0 from 140.5 in the preceding week, compared with 145.6 in the corresponding week of 1948. Index of paperboard production declined to 182.8 from 184.2 in the preceding week, compared with 166.1 in the corresponding week of 1948.

TRENT

tubing chosen for world's largest sulfite liquor alcohol plant



Stainless steel heat exchangers for cooling waste sulfite liquor to fermentation temperatures in the alcohol process.

Using waste sulfite liquor from the adjacent Gatineau Mills of the Canadian International Paper Company, the new $3 million plant of Commercial Alcohols, Ltd., of Montreal, has commenced production with a capacity of 9,000 U. S. gallons of alcohol per day.

Design, engineering and construction were carried out by Vickers-Vulcan Process Engineering Company, Ltd., a joint subsidiary of The Vulcan Copper and Supply Company and Canadian Vickers, Ltd.

The extensive use of stainless steel throughout the processing is a significant endorsement of the reputation stainless steel has established in the pulp and paper and the chemical industries. To this reputation TRENT has made important contributions, particularly by demonstrating the advantages of *precision-finished* tubing—machine-formed, machine-welded and machine-sized for uniformity from $\frac{1}{8}$" to 30" inclusive.

It is noteworthy, therefore, that TRENT tubing was chosen for all services requiring stainless steel piping and tubing, including sulfite liquor lines, heat exchangers, and other stainless steel process piping in the world's largest sulfite liquor alcohol plant. Perhaps *you* have an application that can best be solved by TRENT tubing. We will be glad to give any desired assistance. Informative data on request.

TRENT TUBE COMPANY
Subsidiary of Crucible Steel Company of America
General Office and Plant—East Troy, Wisconsin
Sales Offices: Chicago: 4501 W. Cortland St.
New York: Chrysler Building

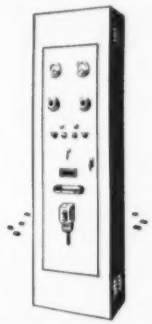
TRENT STAINLESS STEEL TUBING

One of a Series *from Western Precipitation Corporation—pioneers of the commercial application of* COTTRELL *and now selling* COTTRELL *recovery equipment in all parts of the U.S.A. and foreign countries.*

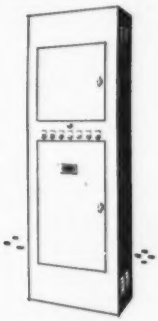
Various Methods of Energizing COTTRELLS *Make Experience a Vital Factor*

The many and varied factors affecting the operating efficiency of a COTTRELL Precipitator make experience and "know how" of the greatest importance in designing and installing COTTRELL equipment. Western Precipitation Corporation—*the organization that pioneered the commercial application of* COTTRELLS—has had over 39 years of first-hand experience in developing and perfecting the various elements that make up a complete COTTRELL installation, and these years of experience assure maximum performance from every Western Precipitation COTTRELL installation.

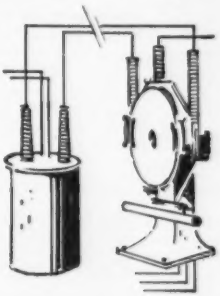
For example, the equipment for energizing Western Precipitation COTTRELLS include such features as the following . . .



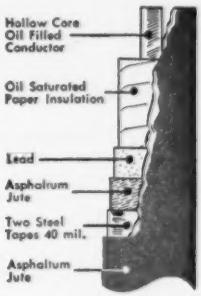
RECTIFIER SWITCHBOARDS—are of the Enclosed Cubicle type with flush-mounted meters, push buttons, selector switches, and indicating lights. The cabinet door and rectifier control circuit are interlocked. Rectifier and transformer contactors, instrument transformers, tap switches, terminal blocks and other auxiliaries are mounted inside the switchboard cabinet.



RAPPER AND POWER PANELS—are of the same external appearance as rectifier switchboards and can be installed beside rectifier switchboards to form a uniform and continuous switchboard installation. The cabinet is divided into two compartments—one containing AB breakers for control of all individual rectifier and signal circuits—the other containing all rapper controls and timers.



RECTIFIERS—for either full or half wave rectification. Mechanical rectifiers of the solid disc type are supplied with Radio Interference Correctors and Inductive Type Automatic Polarity devices. The Automatic polarity device has no commutator or brushes contacting high speed rotating parts. High voltage switch gear with interlocking control units is available.



HIGH VOLTAGE CONNECTIONS—between the rectifiers and the COTTRELL may be either special high voltage petrolatum-filled lead and steel-covered cable with pothead terminal connections, or of rod-and-bus-duct construction.

Watch for the next in this series which outlines the various* COTTRELL *electrode systems available from Western Precipitation Corporation.

WESTERN
Precipitation
CORPORATION

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

Main Offices: 1040 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
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Western Precipitation can design COTTRELLS to operate at any desired efficiency, for any capacity, to collect virtually any solid or liquid suspended in a gas, whether hot or cold.

Do you have these helpful COTTRELL *booklets?* This literature answers many questions concerning COTTRELL equipment. Free copies will gladly be sent those interested. Ask for booklets C101 and C103.

Paper TRADE JOURNAL

News of the Week

MILLS

Reider Victoria Board Chairman

FULTON, N. Y.—Bert I. Reider has been named chairman of the board of directors of the Victoria Paper Mills Co., here. Named president to succeed Mr. Rider was Joel S. Hartman. Other officers include: S. C. Hartman, executive-vice president; J. K. Carroll, vice-president; and M. Floyd Dresser, secretary-treasurer.

Operation of the Victoria mill will be under the direction of Mr. Hartman. Mr. Rider has been associated with Victoria since 1926, serving successively as treasurer, vice-president, sales manager and president. He will return to Baltimore from which point he will continue his contacts with his firm's distributors.

Gair-Reynolds Arrangement

NEW YORK — The Robert Gair Co., Inc., and the Reynolds Metals Co., have completed an arrangement through which aluminum foil carton manufacturing of Reynolds will be carried on by Gair, in association with Reynolds. It will produce "Gair-Reynolds Foiline" folding cartons.

J. Louis Reynolds, vice-president of Reynolds Metals Co., and Norman F. Greenway, vice-president of the Robert Gair Co., Inc., disclosed that Reynolds will turn over to Gair its techniques for laminating and printing foil and will lease to Gair machinery for laminating foil and paperboard. The machinery will be installed and operations conducted by Gair in its folding carton plants at Piermont, N. Y.

Berwin Weighing Products Change

DANSVILLE, N. Y.—If present plans are developed, an unspecified new type of paper will be manufactured at the local plant of the Berwin Paper Co., Inc., according to T. W. Donoghue, vice-president. The change-over will involve an investment in additional equipment. The new product is used to manufacture a variety of items, it is understood. The company has been experimenting with its manufacture from various scrap paper materials, and also with flameproofing it.

Fibreboard Personnel Changes

SAN FRANCISCO—T. N. Bland, vice-president and general manager of Fibreboard Products Inc., reports that B. P. Altick, presently general manager of Federal Container Co., Philadelphia, a wholly-owned Fibreboard subsidiary, will return to San Francisco on December 1 to become assistant to the general manager.

N. M. Brisbois, vice-president in charge of production, has retired under Fibreboard's pension plan and is being succeeded by Robert E. Bundy, formerly general manager of operations for all Fibreboard mills and converting plants. However, at the request of the management, Mr. Brisbois has consented to remain for one more year as consultant.

Mark E. Sanford replaces Mr. Bundy, moving up from one of Fibreboard's mills at Antioch, where he was resident manager. Dana F. Nelson replaces Mr. Altick at Philadelphia.

Kalamazoo Making Union Choice

KALAMAZOO, Mich. — Thirteen hundred production and maintenance employes of the Kalamazoo Vegetable Parchment Co., were balloting on September 22, to determine which union will represent them in their collective bargaining with the company.

The election is being conducted by the Labor Relations Board and involves two unions: the CIO UPW of A as opposed to the AFL IBPM. Employes have a third choice — that of voting for no union at all. Specialized workers, who are represented by other unions, are not eligible to vote in this election. AFL has represented production and maintenance employes for the past six years.

ROLLAND H. BRADFORD

—heads newly opened Chicago office of Ebasco Services, Inc., at 209 South LaSalle street. . . . Ebasco headquarters are at 2 Rector street, New York. . . . Mr. Bradford, who has been with the Ebasco organization for more than 20 years, was born near Lebanon, Mo. . . . He attended Oklahoma A. & M., 1922-24 and is a graduate of the University of Arizona, with a B.S. in civil engineering. His background includes diversified experience in utility operation. During World War II, Mr. Bradford served as a Major with the Corps of Engineers.

SEC Clears Registration Statement

NEW YORK—W. F. Emory, president of the Idaho-Montana Pulp & Paper Co., Missoula, Mont., in an August 23 circular letter to the firm's stock and bond holders, attached to a letter to PAPER TRADE JOURNAL dated September 15 and signed by Tom G. Taylor, finance director, said in part: "This letter is to advise you that the registration statement of the Idaho-Montana Pulp & Paper Co., which has been pending before the Securities Exchange Commission, Washington, D. C., became effective August 23, 1949, at 5:30 P. M., E.D.S.T."

Rail Strike No Bastrop Hindrance

BASTROP, La.—M. V. Orr, agent for the International Paper Co., Southern Kraft Division mills here, reports that the Missouri-Pacific railroad strike has not interfered with operations too much, since the mills' switching is done by the A. & L. M. lines. The Louisiana mill is trucking its paper to the A. & L. M., lines and shipping it from there. Mail is being delivered by through bus from Little Rock to New Orleans. "We have enough raw materials to keep operating for the present," Mr. Orr stated.

Racquette's Sisson Recovers

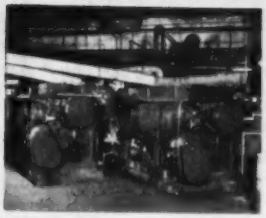
POTSDAM, N. Y.—George Wing Sisson, Jr., president of the Racquette River Paper Co., observed his 87th birthday on September 12 at 9 Broad street, where he and Mrs. Sisson are spending the winter months. Mr. Sisson has recovered from his recent illness and visits the business section of the village nearly every day.

Gair Names Rasmussen

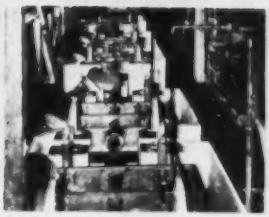
LONDON, Eng.—T. Rasmussen & Co., Ltd., 14 St. Paul's Churchyard, has been appointed by the Robert Gair Co., exclusive sales representative for the British Isles and Europe to sell any kraft liner manufactured by the Southern Paperboard Corp., available for marketing in this area.

Cheboygan Paper Mill Resumes

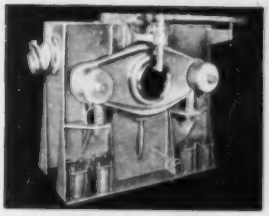
CHEBOYGAN, Mich.—The Cheboygan Paper Mill, has resumed operations following a seven-month shutdown.



BIRD SCREENS — standard of the world — essential for continuous maximum output of uniformly good paper.



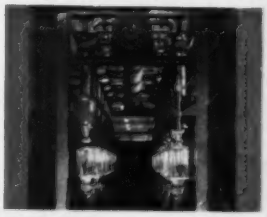
JONSSON SCREENS now handling some 25,000 tons of pulp per day, coarse and fine.



VIBROTOR SCREENS for quality screening of bleached or unbleached pulp — 50 tons per day with .012" plates.

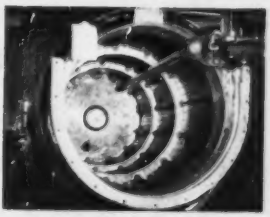
HOW ARE *You* FIXED ON THESE TEN KEY ITEMS OF MILL EQUIPMENT?

Each and every one of them is ready to demonstrate its ability to help you make better pulp and paper and more of it per day at lower cost per ton. Are you willing to be shown?



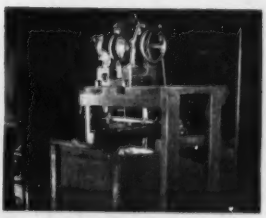
DIRTECS, the modern, efficient way to remove heavy and fine dirt ahead of Screens and as tailings units.

CENTRIFINERS for triple centrifugal treatment to remove dirt specks, metal, rubber, etc. from writings, condenser and other specialty papers.



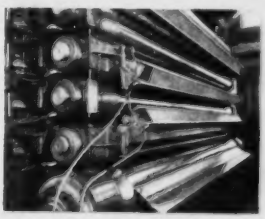
SHOWER PIPES — the Bird Oscillating Shower increases screening efficiency — uses a fraction of the volume of water.

BIRD SAVE-ALLS for recovering good fibres from machine waste water at lowest cost per pound.



BIRD CONSISTENCY REGULATORS for holding stock consistency to not more than 0.1% heavier or lighter than desired. Dependable; trouble-free.

VICKERY FELT CONDITIONERS keep press felts continuously clean and absorbent without mid-week shutdowns.



VICKERY DOCTORS engineered for each individual press roll, wire roll, dryer, calender and super-calender roll.

For bulletins, recommendations, layouts, and estimates get in touch with

BIRD MACHINE COMPANY
South Walpole, Massachusetts

Wants Uncle Sam to Pay

SPRINGFIELD, Mass.—Springfield city officials on September 16 dealt a blow to the hopes of Holyoke paper manufacturers for low-cost navigation on the Connecticut River, declaring that with the cost of making changes in Springfield's sewage system, sewage treatment plant and flood control works estimated at two million dollars, the city's Board of Supervisors was going on record as opposing the plan unless the entire cost is financed by the federal government.

Under the Army Engineers' plan to raise the river level at the Enfield, Conn., dam from 39.4 to 45 feet, radical changes in the sewage disposal system in this city would be necessary, according to a preliminary survey by the Street Department.

Holyoke paper mill officials have long championed the navigation plan as a step to reduce increasingly-high costs for rail and truck transportation. It would also aid in flood control, preventing possible recurrence of floods such as those in 1936 and 1938, which caused several million dollars worth of damage to paper mills.

Wilder Dam Review Sought

SPRINGFIELD, Mass. — Paper manufacturers in Vermont, Western Massachusetts and Connecticut, long interested in the dual problems of water power and flood control, were informed on September 15 that the U. S. Senate had been asked by its Commerce Committee to permit review of a Power Commission authorization for the Bellows Falls Hydroelectric Corp., to raise the height of Wilder Dam on the Connecticut River.

The Federal Power Commission, on October 31, 1946, issued a permit to the power concern to raise the level of water behind the dam near Hartford, Vt., and Lebanon, N. H., from 380 to 385 feet above sea level. Construction has already been started.

Opponents of the higher water level, contending it will flood farm and dairy land and cause damage far beyond the value of the power that could be generated, ask a review in order to present new evidence.

The resolution, introduced by Sen. Aiken (R–Vt.) on behalf of himself and Sens. Bridges (R–N.H.), Tobey (R–N.H.), and Flanders (R–Vt.), was considered by a commerce subcommittee headed by Sen. Tobey.

The power company contends that the highest water level will flood only 363 acres of farmland in New Hampshire and 66 acres in Vermont. Agricultural interests of the two states say these figures do not take into account land that would be made useless by seepage and rising of the water table which would water-log areas not actually flooded.

Opponents of the project have said the land which would be damaged comprises a material portion of the milkshed of greater Boston. They argue the higher dam would not relieve flood hazards in the Connecticut River Valley.

Paper manufacturers, however, who have been ardent supporters of the plan to raise the dam, point out that it would be valuable in their drive to obtain cheaper hydroelectric power, and at the same time would go a long way toward preventing a recurrence of the disasterous 1936 and 1938 floods, which caused millions of dollars of property damage to paper mills in the valley.

Flintkote Wins Oscar

NEW YORK—In the final ratings of an independent board of judges for the *Financial World* Annual Report Survey, released September 15, the Flintkote Co. was judged as having the best 1948 annual report of the building materials industry. The bronze Oscar of Industry trophy will be presented to Flintkote at the Annual Awards Banquet in the Grand Ballroom of Hotel Statler on October 31.

More than 4,500 corporation annual reports were submitted in this national survey, the ninth in the series, and these were judged in one hundred industrial classifications. In the "building materials industry" category the Weyerhaeuser Timber Co., was runner-up for top honors, while General Refractories Co. took third place.

Flintkote won a similar award for its 1946 annual report.

Powell River Co. Chicago Office

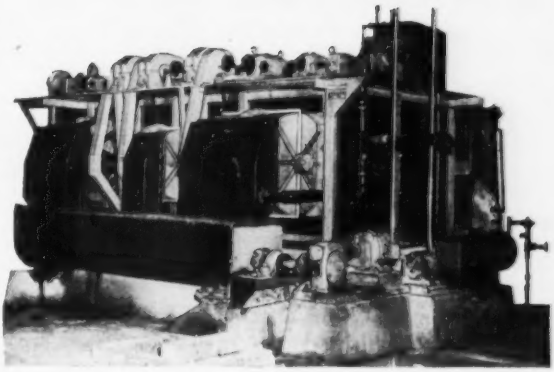
CHICAGO—The Powell River Sales Corp., has opened an office at 20 North Wacker drive, telephone Central 6-2773, in charge of Terry L. Hollern. Mr. Hollern will be servicing pulp and newsprint accounts in the Middle West.

HOLYOKE WATER POWER CO. STARTS CONSTRUCTION OF TAIL RACE

Ground was broken late in August for construction of a large tailrace at the new hydroelectric plant of the Holyoke Water Power Co., Holyoke, Mass. . . . The new plant will be constructed for two 15,000 KW hydroelectric units. Only one unit will be installed at present, the other at a later date. Ultimate installation will consist of four 15,000 KW units for a total of 60,000 KW. . . . Photo at left presents a general view of the construction site. It looks up the Connecticut River from the bridge connecting Holyoke with South Hadley. One end of the dam of the Holyoke Water Power Co., may be seen in the upper right corner, together with the intake structure which controls the flow of water into the power canal system of the company. . . . The new power plant will be constructed near the end of the dam. The tailrace will convey water downstream to a point approximately 1,000 feet below the bridge from which the photo was made. . . . Photo at right shows Robert E. Barrett, Jr., president of the company, addressing civic, industrial and labor leaders at the job site. . . . The ceremony consisted of a brief description of the construction work by Mr. Barrett, followed by remarks by various of the attending group. These talks were recorded on the spot and later broadcast over Radio Station WHYN. . . . Development of hydraulic power at Holyoke dates from 1849, when the first dam was built. The canal system of the company has been in operation since that date and will continue in operation after completion of the new plant, two years hence.

TRIMBEY CONTINUOUS METERING & PROPORTIONING SYSTEMS

SAVE IN FIRST COST, FLOOR SPACE, POWER AND MAINTENANCE

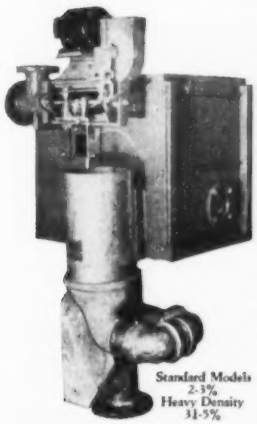


In a large number of paper mills, Trimbey Metering and Proportioning Systems are operating with great success in continuous, mechanically controlled proportioning, blending and metering of the complete paper furnish, replacing batch methods.

The rate of total output of the System can be adjusted instantly over a wide range without disturbing relative proportions of any of the ingredients. Without shutting down, proportions of any, or all, pulps or chemical ingredients can be individually changed to meet your requirements.

Totalizing counters record the volume of each pulp used during any given period, for cost accounting purposes. Specific designs are available to meet your individual mill requirements. These range from 10 to 400 tons per day for two or more Pulps, Color, Size, Clay Alum, etc.

TRIMBEY CONSISTENCY REGULATORS



Standard Models 2-3% Heavy Density 3½-5%

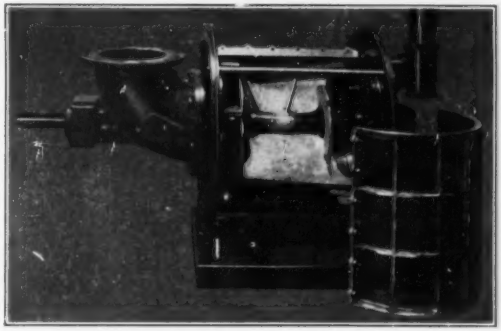
Centrifugal Pump Type

These regulators automatically control pulp at densities from 2 to 5%, allowing a maximum variation of 1/10 of 1% consistency, plus or minus. They are sensitive to changes of consistency of 2/100 of 1%. The regulating action is automatic, independent of the tonnage handled. The regulator is suitable for use with centrifugal pumps. The basic principle is a change in the friction head corresponding with changing consistencies, controlling the amount of thinning water added at the suction side of the pump. This engages a fork-and-ratchet mechanism controlling a motor-driven water valve. Special "Mixing Box" Type Consistency Regulators are available for use with either Centrifugal or Plunger Pumps.

For consistencies from 2 to 3¼%, the friction cylinder is 8" in diameter, with 2½ or 3" outlet, requiring a supply of 35 gallons per minute. For consistencies from 3½ to 5%, a "Heavy Density" design with a friction cylinder 10" in diameter and a 4" outlet is used, requiring a supply of 75 gallons per minute.

TRIMBEY MACHINE WORKS

GLENS FALLS, N. Y.



TRIMBEY CENTRIFUGAL PULP SCREEN

Screening at HIGH CONSISTENCIES is allowed by this completely submerged type of Centrifugal Pulp Screen. It delivers the accepted stock at a point 2 feet above the center line of the screen. The rejects, which run from 5 to 12%, are raised 3 to 5 feet above the center line of the screen, permitting the Tailings Screens to be located at the same height as the Primary Screens and to be fed automatically without pumping.

The pulsating action of the screen automatically cleans the plates WITHOUT SHOWERS.

The large clearance and self-cleaning action reduce plate breakage and deliver CLEAN stock.

TYPICAL SCREEN CAPACITIES PER 24 HOURS

USING 30-37 H.P. 420-475 R.P.M.

	Perf.	Tons
Sulphite	.055"	20-30
Ground Wood	.065"	30-35
Mixed Waste Papers	.110"	50
De-Inked Book Stock	.055"	50
Semi-Chemical Pulp	.045"	50
Soda	.050"	75
Kraft	.090"	50-70
Insulating Board	3/16"	50

Industrial Electrical Conference

SACANDAGA, N. Y.—"Planning for Progress" was the theme of the Adirondack Paper Industrial Electrical Conference sponsored by the General Electric Co., here, September 12-13. Program of the meeting was as follows:

Monday, September 12

Breakfast, 8:00 a.m. Welcome, K. R. Ross, Manager, Manufacturing Industries Div., General Electric Co.

Morning Session, 9:15 a.m. Chairman—K. H. Runkle, Manager, Industrial Divisions, General Electric Co. Theme—"Current Management Problems." "The Salesman's Market," C. H. Lang, Vice President, General Electric Co. "Mutual Progress Means More Progress," R. B. Robertson, President, Champion Paper & Fibre Co. "Financial Aspects of Capital Improvements," C. L. Kenyon, Manager Credit & Collection Div., Executive Dept., General Electric Co. "Our Many-Million Dollar Interest in Your Industry," H. L. Erlicher, Vice President, General Electric Co. "What the Paper Industry Expects from the General Electric Co.," J. B. Eakin, Purchasing Agent, St. Regis Paper Co. "Some Hopeful Experiments in Employee Relations," W. V. Merrihue, Manager Employee & Community Relations, General Electric Co.

Intermission — Theme — "Mill Trends." "Higher Mill Efficiencies and the New Gas Turbine," W. C. Bloomquist, Industrial Engineering Div., General Electric Co. "More Usable Power, Greater Protection and Better Service Continuity Applying Modern Distribution Practices," D. L. Beeman, Manager Industrial Power Div., General Electric Co. "Protect Your Personnel and Equipment Throughout the Mill," G. W. Knapp, Manager Paper & Textile Div., General Electric Co.

Luncheon, 12:30 p.m.
Recreational Get-together, 2:00 p.m.
Refreshments, 6:00 p.m.
Dinner, 7:00 p.m.
Entertainment, 8:15 p.m.

Tuesday, September 13

Breakfast, 8:00 a.m. Morning Session, 9:15 a.m. Chairman—F. M. Roberts, Assistant Manager, Industrial Engineering Divs., General Electric Co. Theme—"Mill Trends" (cont.) "Less Work for the Operator Means More Production," G. E. Shaad, Paper & Textile Div., General Electric Co. "Quality Control with Process Instrumentation," B. L. Kassing, General Manager of Manufacturing, Ecusta Paper Co. "New Horizons Using New System Techniques," W. Mikelson, Paper & Textile Div., General Electric Co. "Wood Handling," A. P. Schnyder, Paper Mill Engineer, Ebasco Services, Inc. "Why Pay More to Handle Your Materials?" D. H. Putnam, Manager of Sales, Lumber & Paper Ind. Sec., General Electric Co.

Intermission — Theme — "Looking Ahead Together." "Our Part in Your Future," W. V. O'Brien, General Sales Manager Apparatus Dept., General Electric Co. "Profit by Project Coordination," K. R. Ross, Manager Manufacturing Industries Div., General Electric Co. "Engineering Co-operation and Mutual Assistance," A. K. Bushman, Manager Application and Service Engineering, General Electric Co. "Modern Trends in Pulp and Papermaking," G. W. E. Nicholson, Vice President and General Manager, Union Bag & Paper Co. "What's New in Research?" Dr. C. G. Suits, Vice President, General Electric Co. "Can We Plan on Atomic Power?" H. A. Winne, Vice President, General Electric Co.

Luncheon, 12:30 p.m.
Adjournment, 3:00 p.m.

Members of the paper industry attending the meetings were reported in the *Paper Trade Journal*, September 15 issue, Page 16 under title of "Paper Industry Electrical Conference."

"No Sale," Says Union Bag

NEW YORK—A report that property of the Union Bag & Paper Corp., at Hudson Falls, N. Y., had been sold to either the St. Regis Paper Co., or the Mohawk Carpet Mills, was denied on September 12 by a Union Bag spokesman.

While terming the report groundless, the spokesman did say that his firm was considering consolidation of operations wherever and whenever possible and that there was the possibility that some of the surplus property at Hudson Falls might be sold shortly.

LEFT: R. B. Robertson, president, Champion Paper & Fibre Co., speaking on "Mutual Progress Means More Progress" at opening session of General Electric-sponsored Paper Industry Electrical Conference, Adirondack Inn, Sacandaga, N. Y., September 12-13. . . . CENTER: M. S. Fogerty, chief engineer, Sutherland Paper Co., and Chester H. Lang, vice-president in charge of sales, G-E apparatus department. . . . RIGHT: J. B. Eakin, purchasing agent, St. Regis Paper Co., addressing opening session.

Coosa River Mill Progress

CHILDERSBURG, Ala.—Southern pine logs will soon be dropping into the barking drums of the huge Coosa River Newsprint Co. mill here, marking the second time in history that pine, abundant natural resource of the South, has been used in the commercial manufacture of newsprint in the South. The $32,000,000 Coosa River plant, being built by the F. H. McGraw & Co. and the Daniel Construction Co., as a joint venture, is now more than 50 percent complete and is expected to be in operation early next year.

Newsprint from the mill, which is taking shape on a 615-acre site that was formerly part of the Coosa River ordnance plant built during World War II to make powder, has already been allocated to nearly 70 southern communities whose newspaper publishers helped finance the new undertaking. The plant will be operated by the Kimberly-Clark Corp. who also helped finance the project.

Economic significance of the Coosa River will be underscored by the fact that nearly four million acres of forest land, with an estimated 1,500,000 cords of pine and gum pulpwood, are located within a 50-mile radius. About 230,000 cords, or 15 percent of the growth on this land, will be required in the manufacturing operations. At an average of ten dollars a cord, purchase of pulpwood would mean an expenditure of $2,300,000 for this raw material alone.

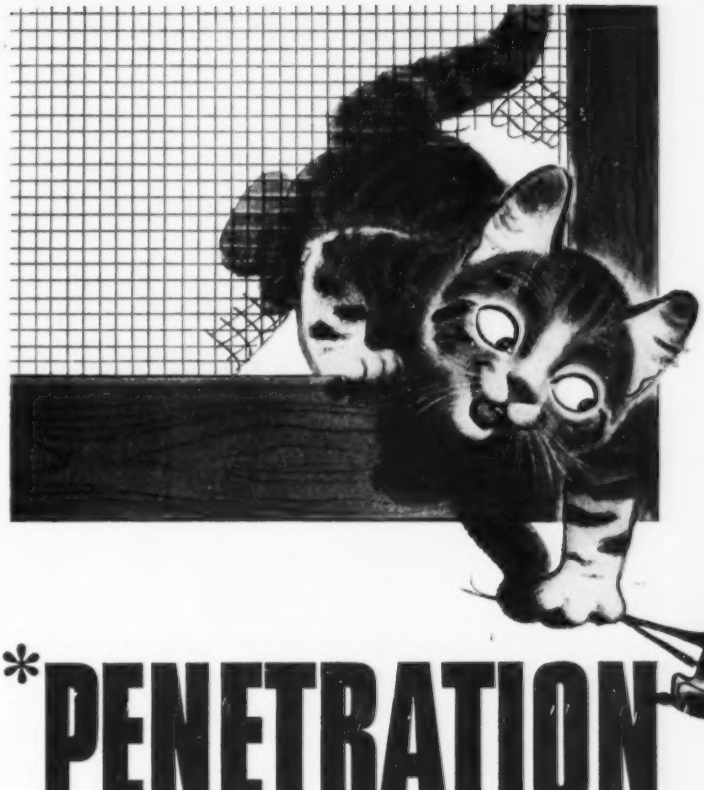
The plant will be the only one in the Southeast with a ground wood and cooking process.

Main structure of the gigantic plant, which houses 300-foot long machines, is 1,100 feet long and approximately 250 feet wide. It is a series of abutting buildings, embracing the digestors, wash room, bleach plant, screen room shops and storeroom, grinder room, stock preparation space, machine room, pulp drying room and roll storage area. Other structures that make up the plant are a lime kiln, slaker building, wood room, salt cake storehouse, chip bin, recovery building and evaporators, and a main office building. The recovery building is 105 feet high.

Six hundred feet of conveyors will move the logs to the two barking drums and other conveyors will connect with the process buildings. Nearly 60 various sized tanks have been installed in the plant.

A one-story, V-shaped office building of latest design was completed early this spring. It houses officials of the newsprint company, which include A. G. Wakeman, W. E. Hornbeck, C. C. Lande, and John Raeburn.

Though ground was broken on the project only a little over a year ago, construction has been progressing rapidly under the guidance of an executive commitee composed of Donald W. Neville, McGraw vice president, and Charles E. and R. Hugh Daniel,



*PENETRATION

Peak production . . . without worry of breakdown due to friction and wear . . . is made easier with Tycol high quality greases.

Made to "absorb punishment" without thinning down and dripping, Tycol greases avoid wasted lubricant, lost bearings and unnecessary down-time. These ultra-safe lubricants keep bearings . . . gears . . . shafts . . . friction-free and cool. They are available in grades with the proper "*PENETRATION" needed to give power a chance to produce with a minimum of waste.

Call your nearest Tide Water Associated office. Let them suggest the Tycol grease best suited to your needs . . . and remember, Tycol green cast greases are made from high quality cylinder stock and well refined neutral oil, with a minimum of soap — a maximum of oil . . . more efficient lubrication per pound of grease.

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*LEARN WHAT THIS PRODUCT CHARACTERISTIC MEANS TO YOU — READ "LUBRICANIA" This informative handbook, "Tide Water Associated Lubricania," gives clear, concise descriptions of the basic tests used to determine important properties of oils and greases. For your free copy, write to Tide Water Associated Oil Company, 17 Battery Place, New York 4, N. Y.

REFINERS AND MARKETERS OF VEEDOL — THE WORLD'S MOST FAMOUS MOTOR OIL

who head the Daniel company.

Land for the project was purchased from the federal government and a 40-year lease was made with the government for use of the ordnance plant's power and water facilities, which include a 25,000-kilowatt electric power plant now operated by the Alabama Power Co. and a 23 million gallon filtration plant.

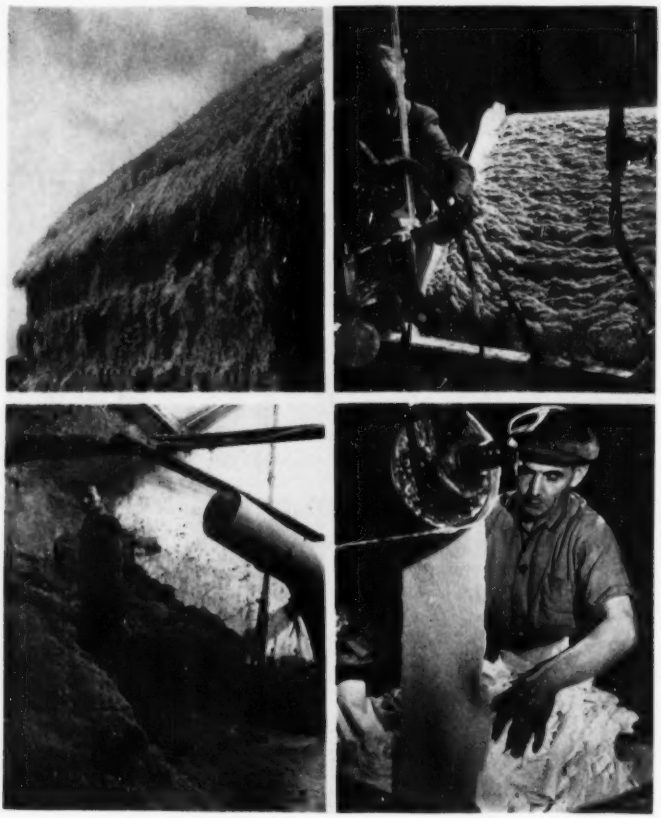
$30,000 In Anniversary Bonuses

MUSKEGON, Mich. — The Central Paper Co., recently distributed nearly $30,000 among employes as the crowning event of its 50th anniversary celebration. More than 460 workers shared in the cash gift, prorated on the basis of $5 for every year of service, C. W. Smith, president, reports.

Albert W. Zahrt, oldest employe, who started with Central when it was founded in Muskegon in 1899, received a bonus of $250. A souvenir of the observance is a company history, written from the memoirs of Mr. Zahrt.

Other employes of 25 years or more, sharing in the bonus are: James Brow, 45 years; Jean Seastrom, Alfred Edlund, Fred Pearson, F. C. Vogel, Frank Kochanski and Clemens Zok, 35 to 44 years; Enos Rowe, Karol Kowalski, Eldridge Turner, August Redman, Herman Wiese, Joe Kochanski, Henry Collier, Stanley Usmial, C. C. Dewey, Marshall Pleimling, Wlad Zbojniewicz, Clifford Allen, George Pulsifer, John Babola, Jakob Tuleja, Irvin Swanson, Floyd Henry, John Smith, Mulder Okerlund, Charles Burke, Valcona Lash, John Meyers, Fred Fricke, Alanson Hazard, Fred Nienow, Joe Donovan, Ray Cuddohy, Frank Rozyski, Hugo Hotz, Uriah Fox, William Stanley, Edwin Nilson, William Powers and President Smith.

BRITAIN MAKING CELLULOSE PULP FROM STRAW



Britain's Cellulose Development Corp. has developed a new process for extracting cellulose pulp from straw. This pulp is suitable for the manufacture of high-grade paper. . . . Pictures show: TOP LEFT: Straw, now a potential source of wealth, straw was formerly burned as waste. . . . BOTTOM LEFT: Semi-pulp, which could be used to make rough wrapping paper, arrives at the top of the plant for a second chlorination process. . . . TOP RIGHT: The pulp is collected on a decker where bleach liquor is introduced. The pulp is then passed to the bleach tower. . . . BOTTOM RIGHT: The finished product comes off the rollers ready for the paper mill. (Official British Information Services Photos, issued: September, 1949.)

Profit Bonus to Employes

SPRINGFIELD, Mass. — The United States Envelope Co., on September 14, paid employes on the payroll as of August 17 a two percent bonus for a period of six months. A. F. Peterson, vice-president in charge of production and labor relations, in announcing the bonus, stressed that business conditions are becoming stabilized, with profits retreating from the boom level. The U. S. Envelope Co., has paid employes a series of bonuses out of profits on a purely voluntary basis, he said, adding that they are no part of the wage agreements existing between the company and its workers. Mr. Peterson pointed out that the bonus paid last spring amounted to three percent of employes' wages. "It probably will be necessary to eliminate bonuses out of company profits in the future," Mr. Peterson stated.

War Bonds to 24 K. C. Men

KIMBERLY, Wis.—Twenty-four members of the Kimberly Mill Quarter-Century Club were honored at a dinner September 20. The new members, who have completed 25 years service with Kimberly-Clark, were addressed by Wm. Keellett, vice-president in charge of manufacturing, and John R. Kimberly, vice-president in charge of sales. J. T. Doerfler, mill manager, was master of ceremonies. A $100 war bond was presented to each new member.

Canadian Mill Inventory Values

OTTAWA — Estimated total value of inventories of pulp and paper mills across Canada continued to decline in April, standing at 137.2 as against 139.5 in March and 140.6 in February, on the base of 1947 average being 100, according to the latest report of the Canadian Government, with these comparing with 133.2, 135.5, and 132.3 in February, March and April a year ago.

Carson to Cincy. for Mando

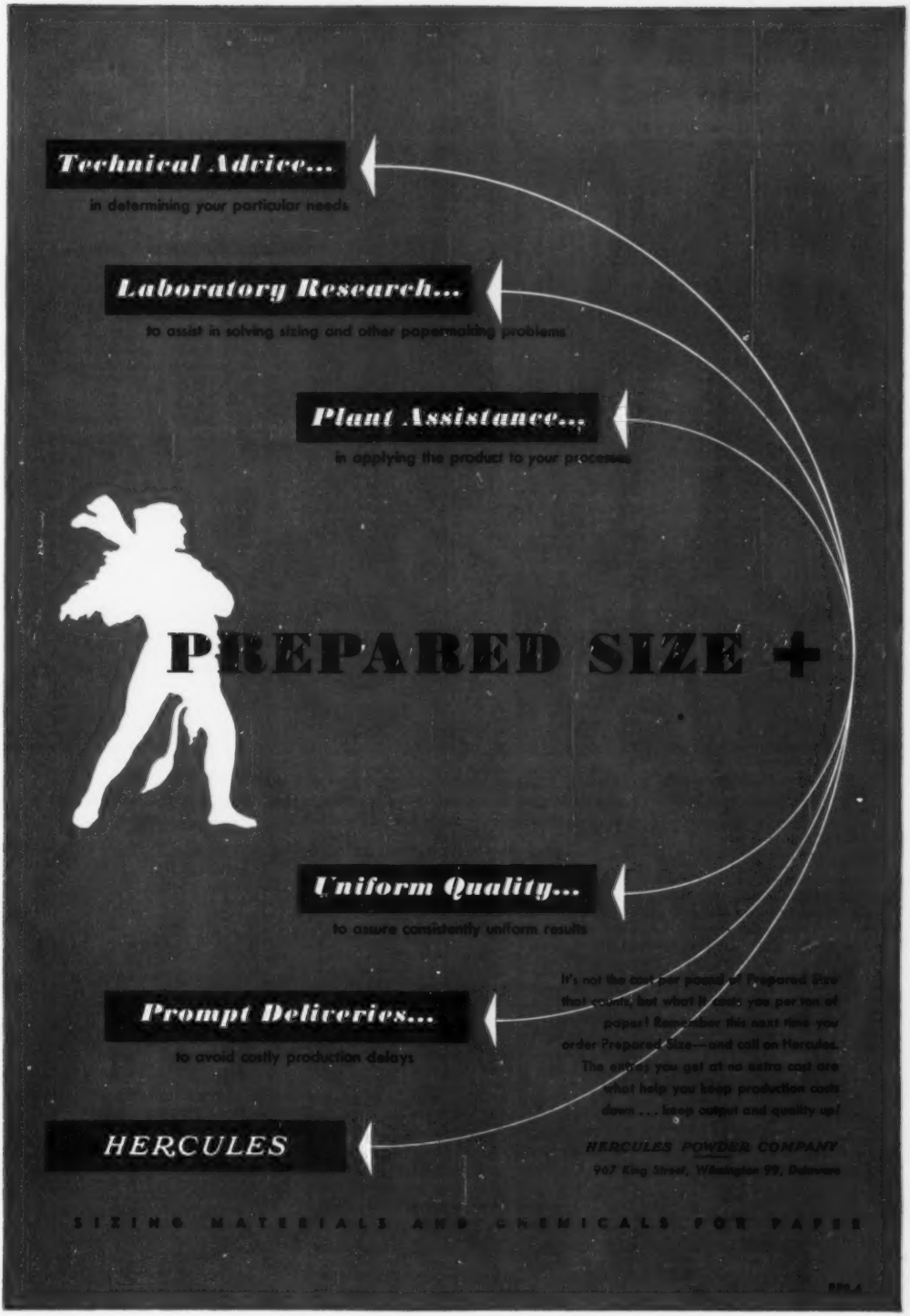
DAYTON, Ohio—W. M. Carson has been appointed sales representative in the Dayton-Cincinnati area for the Insulite division of the Minnesota & Ontario Paper Co., Minneapolis. Previously Mr. Carson was sales representative for General Timber Services, a Weyerhauser subsidiary, manufacturing prefabricated houses in Dubuque, Iowa.

Ebersole Co-Op Club Speaker

MACON, Ga.—William M. Ebersole, pulp mill superintendent of the Macon Kraft Co., was guest speaker at a recent meeting of the Macon Co-Operative Club. Mr. Ebersole outlined the workings of the multi-million dollar Kraft plant here. He has been with the firm since its establishment.

Three Scott Veterans

CHESTER, Pa. — Scott employees recently completing lengthy terms of service with the Scott Paper Co., include: Ernest Henry, 32 years; Wm. Bauman, 31 years, and George Digrius, 25 years.


Technical Advice...
in determining your particular needs
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to assist in solving sizing and other papermaking problems
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in applying the product to your processes
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to assure consistently uniform results
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to avoid costly production delays
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HERCULES POWDER COMPANY
SIZING MATERIALS AND CHEMICALS FOR PAPER

Veteran Machine Tender Retires

KAUKAUNA, Wis. — Frank Noie, after 55 years in the employ of the Combined Locks Paper Co., has retired at the age of 74. Mr. Noie began work with the Thilmany Pulp & Paper Co., when he was 14. After a year he transferred to the Union Bag mill. Two years later he went to the Badger Paper mill and three years later joined the Combined Locks Co., as spare machine tender on No. 3, then on No. 4, the job he held at retirement.

Three 30-Yr. KVP Vets

KALAMAZOO, Mich. — Three veteran employes of the Kalamazoo Vegetable Parchment Co., rounded out 30 years of service this month, becoming eligible to receive watches at the annual old timer party in December. They are Ivy S. Roberts of the Tennessee sales office; Asa P. Rice, tour supervisor in paper machine No. 1; and Wm. H. Sweitzer of the billing department. The three joined K. V. P. in 1919.

Robinson Host to Employes

CANTON, N. C.—Reuben B. Robertson, president of the Champion Paper & Fibre Co., was host to more than 350 members of the Champion five-year continuous service group with an outdoor recreation program and pit barbecue supper at Camp Hope, September 10. Of the 580 members of the club, 109 became eligible for membership this year.

Step Up Port Townsend Mills

PORT TOWNSEND, Wash.—The Crown Zellerbach Corp. reports that both No. 1 and No. 2 paper machines have stepped up operations to a seven-day week. Both machines curtailed operation last spring when No. 2 dropped from a seven-day to a five-day week and No. 1 from seven to six days.

International Ups Driscoll

PALMER, N. Y.—M. R. Driscoll has been named plant engineer of the Hudson River Mill of the International Paper Company succeeding Edward Hutchins who retired last month, O. B. Beyer, mill manager, reports.

Calder Augments Union Bag Holdings

NEW YORK—Alexander Calder, president of the Union Bag & Paper Corp., in August purchased 5,000 shares of the firm's common stock, increasing his direct holdings to 19,877 shares.

Jesse G. Swift Resigns

BOSTON—Jesse G. Swift, mill agent for the International Paper Co., Southern Kraft Division, for 50 years, resigned from that position on September 15.

Port Huron Storage Building

PORT HURON, Wis. — The Port Huron Sulphite & Paper Co., will erect a $60,000 storage building, 88 by 136 feet in area.

H. W. PRENTISS, JR.

—president of the Armstrong Cork Co., reports that his firm, which has long manufactured fibreboard insulation at its Fulton, N. Y., plant, is now die-cutting it into special shapes and sizes for automobile manufacturers. . . . The die-cut product is used under the dashes of automobiles.

FORESTRY

Government Control Opposed

ESCANABA, Mich. — The pulpwood industry is definitely in the forestry business and is opposed to government control or regulation of forest cutting on private timber lands declared W. H. Hildebrand, woodlands manager of the Michigan division of the Mead Corp. in a talk before the Upper Peninsula Forest Conference in Chatham, September 13.

Subject of the conference was Industry Forestry and a panel discussion of future forestry objectives was held.

Participating were: Jay Price, U. S. regional forester, Milwaukee; Bruce Buell, forester, for the Northern Paper Mills, Green Bay, Wis.; Stanley Fontana, deputy director of the Michigan Conservation Department; J. W. Brown, professor of forestry, University of Michigan; P. A. Herbert of Michigan State College; E. L. Pearce, president, Union National Bank, Marquette; and W. F. Ramsdell, secretary of the Forest Industries Information Committee, University of Michigan. Moderator of the meeting was S. T. Dana, dean of the school of forestry, University of Michigan.

Mr. Hildebrand said that during the war pulp paper mills of Michigan and Wisconsin could not have kept up production without the wood products of Canada and the Lake States.

The primary reason for the present trend of land buying on the part of the paper and pulp industries in these states is the fact that the mills cannot depend on the various sources of supply from year to year, therefore they accumulate a back-log of raw materials for emergency use and round out their requirements Mr. Hildebrand explained.

The industry's objective is to practice intensive land management through successive cuttings with a view towards the most rapid growth of species desired by the consuming mills. Opinion is that private companies are better able to manage commercial timber lands than government hamstringing methods, Mr. Hildebrand added.

Public agencies have a tremendous job to do on their own lands and have little time for supervision of other lands. In Michigan, Minnesota and Wisconsin, public agencies already own 42 percent of the total commercial forest or 21 million acres.

Another practice of industry forestry, Mr. Hildebrand said, is to maintain with producers a working knowledge of the mills' specifications for timber products. Several producers have requested the industry to reduce their spruce and balsam top diameter limits from four to three inches. He said the mills oppose this reduction on grounds it would be an economic waste to handle wood this small.

"From our experience of buying small sized pulpwood during the war", Hildebrand stated, "we believe that lower diameter specifications will most certainly cause timber to be cut prematurely, thus doing more harm than good". Our industry aims to improve the forest situation through research in the use of species not now utilized to the desired extent. Plant facilities are being added to permit substitution of other species for spruce".

More Funds for Forest Protection

OTTAWA.—With the opening of the first session of the newly elected Parliament, the Canadian Government's legislative program indicates that a forestry measure is in the making and this is designed to provide greater federal contributions to forest protection services, being particularly important now in view of the large number of recent forest fires. Last year's fire losses in Canadian forests have been estimated at over $8,500,000 but there are hints that this year's losses may exceed that figure when final tabulations are made, though this opinion is unofficial at the moment.

One report circulating here suggests that the Canadian Government may somehow provide a substantial contribution to improve forest protection services and perhaps even match dollar-for-dollar with the expenditures for such purposes by the provincial authorities which are supposedly spending approximately ten million dollars, annually on forest protection. However, it is stressed that the Canadian Government will be most cautious not to interfere with provincial activities in

5 Great NEW Values
IN SLITTER-WINDER PERFORMANCE

THE NEW
Camachine 18
KALAMAZOO PAPER COMPANY speeds production of top-quality rolls of book and coated papers with a new Camachine 18 Winder. This winder was one of the first to be delivered with the new Camachine pneumatic cutter units; push-button controlled motor-driven riding roll lift; and other recent Camachine improvements.
CAMACHINE-18

NEW CAMACHINES are faster and more dependable than ever. They are easier to adjust and to operate, and are far more responsive to controls. They set unmatched standards for safety and precision. Investigate these five new engineering values.

***NEW!* PNEUMATICALLY CONTROLLED PRESSURE ON CUTTER WHEELS AND CUTTER SPACER BAR.** Assures whistle-clean slitting through longer runs at mile-a-minute speeds. A single control lever sets and maintains uniform pressure on the entire line of cutter wheels. No slow, separate cutter adjustments. No overloaded cutter units. Standard on all new mill-type Camachines.

***NEW!* PUSH-BUTTON CONTROLLED MOTOR-DRIVEN RIDING ROLL LIFT.** Say "goodbye" to another tedious manual operation. Speed up roll changes and add valuable minutes of productive machine and operator time. Standard on Camachine 20; optional on Types 19, 18 and 14.

***NEW!* PNEUMATIC BRAKE ON DRIVE AND IDLER ROLL.** A simple one-hand control brings the fastest, heaviest winder to a s-m-o-o-t-h, quick stop, by braking the drive roll *and* the idler roll simultaneously. This new brake corrects one of the most serious danger spots in big winder operation. Standard on all new mill-type Camachines.

***NEW!* MOTOR-DRIVEN ROLL EJECTOR.** Automatic power—to move the heaviest rolls swiftly and safely to unloading position. So gentle that not a single layer of paper can be damaged. Operates with no more effort than ringing a doorbell. Standard on Camachines 20, 19 and 18; optional on Type 14.

***NEW!* HYDRAULIC ROLL UNLOADING TABLE.** Cushions finished rolls from the winder to the floor in a smooth eight seconds, with push-button stop-and-hold control. The perfect ending for a precision roll-winding operation. Optional equipment on all machines.

Consult with your Camachine representative for complete information regarding these five new developments, and for the facts about other exclusive Camachine features which have been designed to give you faster production of better rolls.

GOOD NEWS!
These new cost-cutting features can be applied to many existing mill-type Camachines! Why not find out now how you can improve the service of your present winder equipment? Write for information.

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Camachines FOR FAST, TOP QUALITY ROLL PRODUCTION
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AA-212

forestry protection in any way that might be interpreted as moving into the provincial field.

There is no doubt that present operations by the federal services on forestry would be continued or even expanded, but it is understood that there is a growing view that each provincial authority in this country has developed its own protection, research, etc., services for forests within its borders so that thes latter services could be improved with federal aid for the benefit for all forestry resources of Canada. Thus, this infers that the central authorities would not take over, but rather would co-operate in such a way as to allow existing services to be considerably improved through greater research facilities, more forest fire-fighting strength, more aerial patrols, and other betterment in the existing staffs as well as equipment used by the provincial authorities in protecting forestry assets.

Mich. State Lands Classified

LANSING, Mich. — Classification of 438,459 acres of state land in 47 northern counties, with 210,843 acres alloted for public conservation uses, was completed in August after more than three years of special dedication work by the conservation department's lands division. The remainder, 227,616 acres, were left undedicated, subject to purchase or exchange application for private use or available to municipalities for local public use.

Working with county land use planning committees on the classification study since 1946, the department considered soil character, topography, forest growth, past and present uses and location before making recommendations to place nearly half of the acreage in state forests primarily, but also in state parks. Counties in which over 9,000 acres were dedicated to conservation uses are: Baraga, Marquette, Iron, Houghton and Mackinac. Counties in which over 9,000 acres were left undedicated and subject to sale, exchange or available for local public use are: Baraga, Delta, Dickinson, Iron, Marquette, Menominee, Chippewa, Mackinac, Schoolcraft and Houghton.

Conservation Educators Meet

WASHINGTON—The National Ass'n., of Conservation Education and Publicity will hold its annual meeting in Edgewater Park, Miss., September 21-24. The program has been formulated by a committee under the chairmanship of Dr. Olin Capps, director of education of the Missouri State Department of Conservation. Pulp production progress during the past year, as well as forest and timber cutting practices, will be discussed. This annual gathering will bring together representatives of the conservation education and publicity divisions of 33 state departments carrying on direct activities in the field. During the meeting, awards will be presented to leading contributors to the advancement of the national conservation movement.

On Forest Inventory Committee

PORT EDWARDS, Wis.—F. G. Kilp, head of the forestry division of Nekoosa-Edwards Paper Co. has been appointed as the paper industry's representative on the new state Forest Inventory Committee.

The eight-man committee, representing public and private forest interests, has been created by the state conservation commission to inventory Wisconsin's forest assets. Its first task, according to Charles F. Smith, conservation commission chairman, will be to develop a procedure for determining forest values.

Serving with Mr. Kilp on the committee, as announced by Mr. Smith, are H. F. MacFarland, Oconto, representing the Wisconsin County Boards Association; George Corrigan, Hurley, representing saw mills and wood operators; S. R. Gevorkiantz, St. Paul, for the Lake States Forest Experiment station; Albert W. Sump, Milwaukee, for the U. S. Forest Service; Prof. Walter Rowlands, Madison, for the state college of agriculture, F. G. Wilson, Madison, representing the conservation department, and W. G. Meharg, Tomahawk, for the forest protection division of the conservation department.

Va.-Car. Sec. FPRS Meet

DURHAM, N. C. — "Utilization of Wood Waste" will be discussed by nationally known forest prouct experts at the meeting of the Virginia-Carolinas Section of the Forest Products Research Society at Duke University, on November 4. The program features an afternoon panel discussion on "Experiences in, and possibilities for, Using Wood Waste."

Among the panel speakers is Dr. Edward G. Locke, president of the Society. Highlights of the meeting will be the keynote address by C. P. Winslow, past director of the U. S. Forest Products Laboratory, and the banquet remarks by J. D. Lincoln, vice-president, Lincoln Industries, Inc.

This meeting is open to all persons interested in production, development, research, and utilization of forest products. Saturday attractions are a demonstration of a portable defibrator and the Duke-Wake Forest football game. Although the technical sessions will be held on the Duke Campus, the evening social hour and banquet will be at the Washington Duke Hotel. The full program follows:

Morning Session

Opening remarks by Tom A. Finch, Thomasville Chair Co., Thomasville, N. C., section chairman.

Welcome by Dr. Paul Gross, vice-president, Duke University.

Keynote address: "The Importance of Waste Utilization in the Wood Industries," C. P. Winslow, Washington, D. C., past director, Forest Products Laboratory.

Technical subjects: "Collection and Disposal of Wood Waste," by E. A. Carsey, assistant chief engineer, Kirk & Blum Mfg. Co., Cincinnati; and "Wood Waste as a Soil Conditioner," by A. C. McIntyre, chief, regional forestry division, U. S. Soil Conservation Service, Upper Darby, Pa.

Business meeting.

Afternoon Session

Panel discussion: Experiences in, and Possibilities for, Using Wood Waste. Opening remarks by Maurice Hill, manager of production, Drexel Furniture Co., Drexel, N. C., chairman.

Technical subjects: "Wood Waste Used for Fuel" H. C. L. Miller, president, Hofft Co., Inc., Richmond, Va.;

"Wood Waste Used for Synthetic Boards" by Armin Elmendorf, president, Elmendorf Research, Inc., Chicago;

"Chemical Use of Wood Waste" by E. G. Locke, Pacific Northwest Forest Experiment Station, U. S. Forest Service, Portland, Ore.;

"Use of Sawdust, Shavings, Chips, and Wood Flour" by L. H. Reineke, division of industrial investigations, Forest Laboratory, Madison, Wis.; and "Use of Mill Ends and Other Waste for Manufacture into Small Products" by G. Colucci, president, Southern Box & Lumber Co., Wilmington, N. C., followed by floor discussion and questions.

Evening Session

Social hour and banquet, Washington Duke Hotel. Principal Speaker; J. D. Lincoln, vice-president, Lincoln Industries, Inc., Marion, Va.

S. E. Logging Eqpt. Demonstration

RALEIGH, N. C. — Plans for the Southeastern Logging Equipment demonstration here, on October 25-26 have reached the stage where a successful meeting is assured, Dr. R. J. Preston, director of the division of forestry at North Carolina State College, reports. "Already 35 or 40 exhibitors have expressed their intention to operate logging and milling machinery and tools. It looks as though close to half a million dollars worth of equipment will be on hand," he added.

A panel discussion of logging and sawmilling problems will be conducted by lumber and pulpwood men the evening of October 25. The demonstration area is on the State College, Animal Husbandry farm, a short distance north of U. S. Highway No. 1, about five miles west of Raleigh.

Britain's Reforestation Program

LONDON—More than 36,000 acres of new forests were planted in Britain last year. The area afforested was over 10,000 acres more than in the previous year. Last year was the second one of a program planned to restock Britain's woodlands to make good losses due to heavy felling during two world wars. Since the program was initiated 115 million saplings raised in the Forestry Commission's nurseries have been planted.

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Ottawa Given Pinhey Forest

OTTAWA.—Charles H. Pinhey, veteran local business man, has made a gift of 117 acres of land, known as the Sand Hill Merivale Road to the Ottawa Board of Trade to be used as a demonstration woodlot or forestry project where the Board of Trade may show what can be done in reforestation. W. J. Cairns, secretary-manager of the Board of Trade, said the board's Council has formally accepted the gift which is to be called Pinhey Forest in honor of the donor.

"The property is excellent for the purpose, is well fenced and will enable us to pursue this educational work to a far greater extent," stated D. Kemp Edwards, chairman of the Board's forestry project.

Others who have commended the move include F. E. Bronson, chairman, Alan H. Hay, engineer, and H. R. Cram, secretary of the Federal District Commission; Major Gen. Howard Kennedy, Ontario Government forestry consultant, and W. E. Steele, of Kemptville, forester for Eastern Ontario of the Ontario Department of Lands and Forests.

The Board of Trade has agreed to finance the cost of seedlings and other needed material for boys and girls of Ottawa schools if they will make forestry one of their projects. Consent of Dr. McGregor Easson was obtained some time ago. The Board also proposes to call in the Boy Scouts and have squads of Scouts plant trees. Boys and girls from Ottawa schools will also plant trees under direction and thus will combine education with pleasant trips into the outdoors, Mr. Cairns added.

Mr. Cairns said the purpose of the forestry demonstration was not only the growth of trees but to impress on the children how necessary reforestration is to prevent soil drifting and reforestration conserves the soil.

Forest Prod. Research Society

NEW YORK—Tentative program of the October 31-November 1 meeting of the Forest Products Research Society at the Statler hotel here is reported by W. Burdette Wilkins, chairman, as follows:

Morning Session, October 31: "Integrated Utilization of Wood Products."—F. Powell Forbes, Weyerhaeuser Timber Co. "Wood and Paper as a Combination Material."—B. M. Randall, U. S. Plywood. "Fiberboard for Shipping Containers." Luncheon speaker—George N. Lamb of the Mahogany Ass'n., who will show his film "Mahogany . . . Wood of the Ages—Yesterday, Today and Tomorrow."

Afternoon Session, October 31: Panel on imported woods. Charles Close of the Veneer Ass'n., will talk on "Veneer from Imported Wood." Other topics on the panel include importation problems and procedures, primary markets for imported woods, the use of imported wood as lumber, and miscellaneous uses of imported woods. There will be the usual Paul Bunyan bar, followed by informal group dinners in the evening.

Morning Session, November 1: Wood Moisture Relations Panel—George A. Garratt, Chairman. "How Moisture is Held in Wood."—F. F. Wangaard, Yale University. "Movement of Moisture in Wood."—C. V. Holmburg, N. Y. College Forestry. "Fiber Saturation Point, Equilibrium Moisture Content & Hysteresis."—Gregory Baker, University of Maine. "Shrinkage and Drying Stresses."—R. C. Rietz, Forest Prod. Laboratory.

Afternoon Session, November 1: Arrangements are being made to set up several group meetings covering: (1) Dry Kilns and Seasoning; (2) Gluing; (3) Material Handling; (4) Wood Finishes; (5) Machining. There will be a chairman for each group and it is the thought that those interested in a particular field will meet as a group and discuss informally their problems and also get better acquainted with others having the same interest.

Oregon Timberland Income Up

SALEM, Ore.—The state forestry department reports that income from timber lands during June, July, and August aggregated $168,556.64, an increase of $125,000 over the previous three months. This was largely due to plywood sales in Lane county. It was also announced that from June through August, the state acquired an additional 8,126 acres of forest land.

Field work began on the Tillamook burn area on June 13, the report said, with boundary surveys completed and preplant studies made on state forest lands in three townships near Owl camp. The estimates show that 10,000 to 15,000 acres will be aerial seeded. About 1,000 acres will be planted during the fall and winter of 1949-50 if planting stock and feed are procurable.

Of the $300,000 bond issue authorized by the state board of forestry under the Oregon forest rehabilitation act, $100,000 has been approved by the state treasurer from funds of the state Industrial Accident Commission the report added. Supplementary issues will provide additional funds as needed for the rehabilitation program, officials said.

State to Accept Big Pine Nursery

BATON ROUGE, La.—The Louisiana Forestry Commission on September 13 approved a preliminary agreement to take over the United States Forest Service's 70-acre pine seedling nursery near Pollock.

Under the agreement, details of which are to be worked out, the state will operate the nursery and provide seedlings to the federal government as needed.

Production of seedlings next year, including the output of the newly acquired nursery, will total 50,000,000—three times as many as in any previous year, State Forester James Mixon said.

CONVERTERS . . . .

Lake Wales Box Plant Planned

LAKE WALES, Fla.—Mayor J. D. McNair, following conversations with officials of the Florida Fibre Box Co., of Sarasota, disclosed plans for a corrugated box plant to be located near this city. The mayor said the Sarasota concern is working closely with the St. Joe Paper Co.

"The new plant will serve the citrus industry with cartons for single strength canned citrus, canned concentrates, and all types of fresh fruit packages."

U.P.B. Co. Expanding Facilities

HOLYOKE, Mass.—Additional equipment, expected to increase production 25 percent, has been installed at the United Paper Box Co., on Water street, Henry Jarisch, Jr., president, reports. He added the Holyoke factory and the North Adams branch are booked solid for business for the balance of the year.

Harvey Launches Building Job

STURGIS, Mich.—The Harvey Paper Products Co., is erecting a one-story cement block building, 20 by 53 feet in area.

MERCHANTS . . . .

Merchants Cut Freight Costs

CHICAGO—Plans for economizing on inbound and outbound freight were discussed at the recent Regional meeting of Mid-Western Paper Merchants at Hotel Blackstone.

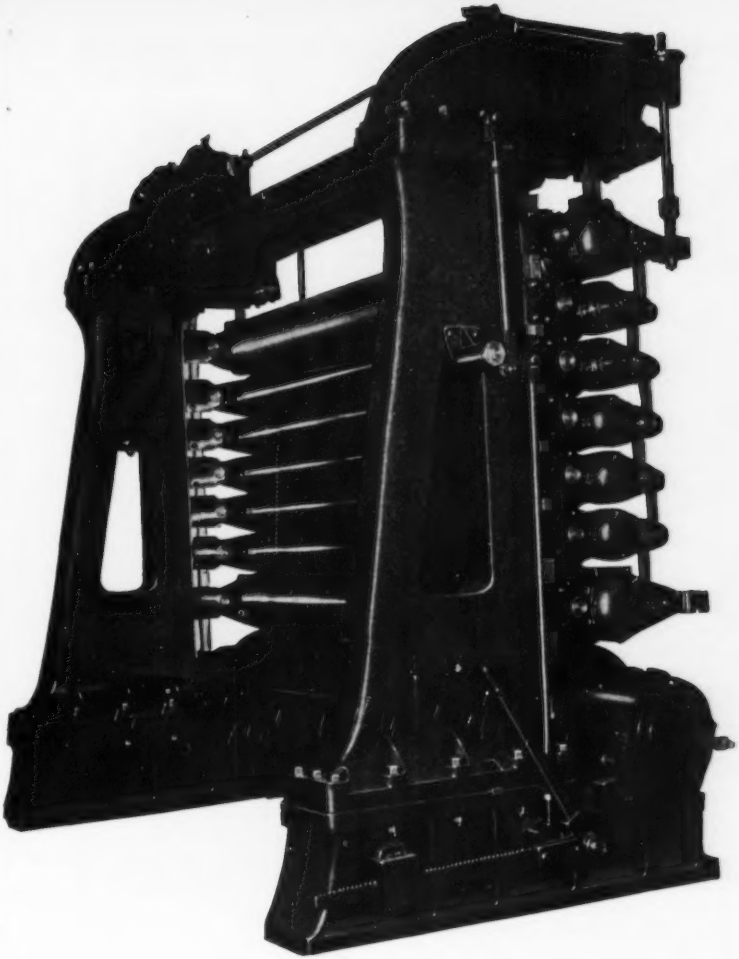
"At this time, merchants present reported on their various plans for economizing on the cost of inbound and outbound freights by the use of their own equipment instead of common carrier," John L. Richey, secretary-treasurer of the Paper & Twine Ass'n., reports.

"Some were able to show a profit by using their own equipment to pick up merchandise from their mills at a less cost than by having it delivered by public carrier. Others were delivering merchandise in the country areas with their own equipment at a substantially lower cost than by shipping through common carriers. Some were making a charge for the delivery, others were absorbing the delivery expense, but in all cases the members reported substantial savings in the use of their own equipment as against public carriers," Mr. Richey added.

Southern PTA Elections

BILOXI, Miss.—The 26th Annual Meeting of the Southern Paper Trade Ass'n. at the Buena Vista hotel, September 8-10 elected the following officers, Sara Meridith, acting secretary, reports:

Charles Liebman, National Paper Co., Atlanta, president; Robert Roach, Roach Paper Co., Little Rock, first vice-president; Dudley Forsmark of



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Tayloe Paper Co., Memphis, second vice-president; and William K. Wyant of Wyant & Sons Paper Co., Atlanta, treasurer.

Directors elected are: Tom Johnson of E. C. Palmer & Co., New Orleans; Palmer Webb, Central Paper Co., Jackson, Miss.; W. H. Atkinson, Montgomery, Ala.; Mayer Myers, Mayer Myers Paper Co., Memphis; and Ran I. Fox, D & W Paper Co., New Orleans.

Bradley, Batzle at Himmell Luncheon

NEW YORK—Shel Bradley, advertising and sales promotion manager of the American Writing Paper Corp., Holyoke, Mass., and Phil Batzle, New York manager of the Martin Cantine Co., together with representatives of seven business publications in the paper industry, attended a surprise luncheon at Charles' French Restaurant on September 21, honoring the fourth anniversary of Samuel S. Himmell's career as columnist-author of Baldwin Brevities. Mr. Himmell is president of the Baldwin Paper Co.

Zellerbach Ups Leddy, Newmark

SAN FRANCISCO—Zellerbach Paper Company has named Allan R. Newmark general manager of the San Francisco division succeeding Thomas A. Leddy who joins the headquarters staff as manager of the printing paper merchandising department. Mr. Newmark joined the company in 1929 in Los Angeles. He transferred to the headquarters staff in San Francisco in 1944.

Quimby-Walstrom Paper Co.

GRAND RAPIDS, Mich.—Quimby-Walstrom Paper Co. is the newly adopted name of the 30-year old Quimby-Cain Paper Co. Officers are: Irving E. Quimby, president; Henry W. Walstrom, vice-president-treasurer; and Anna E. Kirkwood, secretary.

Valley in New Home

SACRAMENTO, Calif.—Valley Paper Co. has moved into its new office and warehouse at Twenty Fourth and R. streets. The building will contain the latest in modern facilities to aid in the efficient storage of paper.

MISCELLANY . . . .

Wallboards From Wood Waste

CAMBRIDGE, Mass.—Production of wallboards from sawdust, shavings and other wood waste is now a commercial reality it was disclosed September 16 in a conference by the Northeastern Wood Utilization Council at Harvard University's Graduate School of Business Administration. Specialists from Switzerland, Sweden, Italy and England as well as from this country assembled to recount their experiences in building and operating such plants throughout the world.

Dr. Robert S. Aries of New York, technical director of the Council, indicated that over ten million tons of wood are wasted annually in the United States besides the amounts left in the woods which cannot be collected economically at present. These ten million tons which are readily available in convenient sawmill and other locations can easily be converted to an equivalent amount of inexpensive wallboards of either the hard (Masonite) type or the soft (Celotex) type.

Edward L. Heermance of New Haven, Conn., executive secretary of the Council, estimated that New England alone could produce and consume within its borders 500 million board feet of wallboards, which in fact would consume only ten percent of the waste available in the area.

Four such plants are now being erected in this country, one of which is in New Hampshire, and about a dozen are on the drawing boards, declared Dr. Aries. The ones in the planning stage are for Mexico, Brazil and India. Minimum cost for such a plant is estimated at $250,000.

It was brought out at the meeting that wallboard plants of the future will be abundant and offered as "packaged units". The wood waste problems of many mills will probably be solved in such a manner during the next decade, as the hardboard market in the United States and abroad is strong and, in any case, a plant of this nature can make "synthetic lumber" at a lower price than conventional lumber can be produced. It can also possess such advantages as waterproofing, fireproofing, fungusproofing, termite proofing and various color and surface effects. Development of this process from a laboratory to a commercial stage has taken approximately seven years, declared Dr. Aries.

Residents of London are the first people in the world who will be able to build a house from sawdust only, Dr. Donald F. Othmer, professor and head of the Department of Chemical Engineering at the Polytechnic Institute of Brooklyn, revealed at the Conference.

In describing his process for making first quality new wood from available sawdust and shavings, Dr. Othmer said that the leading timber importing firm in London this week began the fabrication of wallboards by his process. Louis Ricciardi, a research associate at Polytechnic Institute of Brooklyn, who developed the process with Dr. Othmer, is in London supervising the work. Many thousands of experimental boards have been manufactured in laboratory presses, Dr. Othmer said, and the process has been perfected for industrial use.

An innovation in the process is the elimination of any resin or gluing agent to bind the particles together. By adding a small amount of a cheap readily available chemical, the lignin in the wood itself, representing some 40 percent of the wood content is made to do the gluing job, and it is reactivated to hold the fibers together as it did in the original wood. In other words, it causes the wood to recombine with itself into a strong, grainless board. The cost of the chemical is only one or two tenths of a cent per square foot, it is stated.

Dr. Othmer disclosed that 2,000 square feet of his wallboard can be made from a ton of waste. For commercial operation a minimum plant for fabricating the new sawdust boards would require about 25 tons a day of wood waste which would produce approximately $1,000,000 worth of wallboard a year at a chemical cost of approximately $40,000. The initial plant could be set up at a cost not exceeding $400,000, he said.

The Othmer process mixes a small amount of a chemical with the dry wood waste, then places the material in a hydraulic press equipped with multiple heated platens which can make from ten to 20 boards at one time. In a matter of from ten to 12 minutes the boards are formed and discharged to cool.

In addition to sawdust from all of the common species of wood, residue from other vegetation operations such as bagasse can be utilized. Another advantage in using sawdust, Dr. Othmer said, is the plastic character of the material which can be molded into any shape desired, such as finished doors requiring no carpentry, panels and moldings. Since the board can be molded in almost any desired size and thickness, pre-fabricated walls, ceilings, floors and roofs for factory built houses are possible.

Aries Addresses U. N. Conference

NEW YORK—Speaking before the United Nations' Scientific Conference on Resources, Forest Section meeting on "Preservation and Chemical Utilization of Wood" on August 31, Dr. Robert S. Aries, technical director of the Northeastern Wood Utilization Council, Brooklyn, N. Y., who recently returned from a survey of tropical woods of several Latin-American countries, said:

"One of the most significant technical developments of the last decade has been our better knowledge of the pulping of hardwoods. With the increasing shortage of softwoods throughout the world, more emphasis should be laid on hardwoods to meet the growing demands for pulp, paper and rayon. It is believed that some extreme northern parts of the American continent and part of Russia can be considered as the "last frontier" for pulpable softwoods, and these areas are relatively inaccessible.

"The pulping of tropical woods will probably receive its greatest impetus during the next two decades and 'jungle' countries may well become pulp exporters rather than importers as at present. The pulping operations will be integrated with some saw-milling and plywood plants, which are now in existence or contemplated for the near future. In one such operation, which I recently studied, about 80 tons of wood material was left in the forests as unsuitable for lumber and plywood. Un-

The First Paper Money in America

For seventy years after the landing of the Pilgrims, the American Colonists had no money of their own. They bought goods and paid taxes with coins brought from Europe, with tobacco, food, and produce. Then in 1690 Colonial troops returned to Boston from an expedition against the French in Canada. Payment was due them for their services, and to meet the need, the Massachusetts Colony issued the first paper money printed in America. South Carolina issued printed money in 1712, and the other colonies soon followed.

Today, paper money is the common currency of the land. Bills, bonds, notes, checks, credit certificates in every form are printed on paper. Banks, business, and government maintain the nation's economy through pledges on paper—the product most used by man.

The dramatic story of paper is told in the sound-and-color film, "Paper — Pacemaker of Progress," and in a book under the same title. Both are presented by F. C. Huyck & Sons as a tribute to the Paper Industry. The book will be sent free upon request.

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der typical Latin American conditions and labor costs, this raw material could be brought to the mill for as low as ten percent of the cost at the average United States pulp mill. It could in turn produce 50 tons of pulp suitable for boxes, corrugation boards, wallboard, etc.

"The significant technical advance has been the perfection of the neutral sulfite semi-chemical process for pulping, which is ideally suited for tropical woods. This process involves both a chemical softening and a mechanical grinding. It uses lesser amounts of chemicals than normal pulping, the final step being entirely mechanical. The process has been already commercialized in several large installations and as many as 30 different species have been pulped simultaneously with success. This is an important feature in view of the virtual economic impossibility of segregating many of the tropical woods which grow in dense mixed stands.

"As a by-product of such pulping operations, we may get increased quantities of tannin, the bulk of which is now supplied by the Argentinian quebracho. Many of these tropical woods have barks rich in tannins which will undoubtedly be extracted in a preliminary operation. This may tend to ease the tannin shortage and lower the price from its present day monopolistic levels.

"While Latin America now makes less than two percent of the pulp produced in Canada and the United States, it can confidently be expected that this percentage will increase during the next two decades, perhaps to as much as 15-20 percent of the North American production."

"Employe" Definition Perils Industry

NEW YORK — Commenting upon the progress of HR-6000 (Social Security Act Amendments of 1949) before the House Rules Committee on September 16, E. W. Tinker, executive secretary of the American Paper & Pulp Ass'n., bulletined his membership on that date, in part as follows:

"In the event that H.R.-6000 is enacted in its present form and with its present definition of employe, the traditional methods used by pulp and paper mills for obtaining pulpwood will be greatly changed. Many small businesses now engaged in the production of pulpwood for ultimate sale to the mills, or functioning as independent contractors in producing pulpwood for such persons, will be out of business.

"At present many mills are obtaining their pulpwood requirements from widely scattered and small areas. Should the term 'employe' be expanded beyond the common concept, it would necessitate concentration of many pulpwood producing operations in large areas where cutters and others could work together as one unit under close mill supervision.

"I am firmly convinced that the confusion which would attend the adoption of any such definition of 'employe' as proposed in H.R. 6000 would only result in: (1) Difficulties for the small supplier in carrying on business for himself and satisfying his customers that they have no dangers of Social Security liabilities in dealing with him. (2) The taking over of the business of small suppliers by the mills. (3) Increased administration costs to the mills, and (4) Reduction in markets for the presently lucrative and expanding business of growing and harvesting trees on small plots.

"Moreover, if an individual should be considered an 'employe' for social security tax purposes, it is reasonable to suppose that very shortly a claim will be made that the same individual is also an 'employe' for purposes of income tax withholding, workmen's compensation, unemployment insurance, wages and hours purposes, and tort liability."

Electronic "Type" Setter

CAMBRIDGE, Mass.—The Lithomat Corp., on September 15 demonstrated publicly for the first time, an electronic "type" setting device that produces photographic positives or negatives without the use of type metal. It is an automatic typewriter that "photographs" lines of type on a film, which in turn can be used to make a printing plate—all in about five minutes.

Any stenographer or typist can operate it. When a typewritten line is complete, the letters are taken electronically from the storage chamber and coded. With the speed of light, the letters in code are transmitted to a decoding device where the letters bounce out again in their natural form. They flash against an unexposed film and are photographed.

Within minutes, the film can be developed and engraved on a printing plate, ready for the presses. All the intermediate steps in the newspaper or magazine composing room have been eliminated.

The system provides automatic justifying. The device can be made to set 20 lines a minute (three times as rapidly as the conventional type-setting machine) it is stated.

HB-1211 Awaits Truman's Pen

WASHINGTON—Passage by the Senate of HB-1211 (Reciprocal Trade Agreements) further tightens government's hold on the pulp and paper industry. As we go to press, the bill is on the President's desk awaiting signature. That he will sign the bill is a foregone conclusion.

Briefly, the bill extends the present reciprocal trade agreements for three years. No protection for the pulp and paper industry is incorporated in the legislation.

E. W. Tinker, executive secretary of the American Paper & Pulp Ass'n., in a letter to Sen. Geo. W. Malone (R-Nev.), who opposed the bill, wrote: ". . . We are peculiarly vulnerable to foreign competition, in fact almost defenseless without some tariff protection."

Addressing the Senate, Sen. Malone again quoted from Mr. Tinker's brief to the Committee for Reciprocity Information:

"This industry is fully aware of the importance of an expanded foreign trade, but is equally aware that the ultimate good of the nation will not be achieved by the hamstringing of this most important industry."

"Reciprocity should be a true reciprocity. As far as paper is concerned it is a one-way street. We are asked to sacrifice everything for the good of other industries whose export trade is their principal element of profit.

"The American Paper Industry cannot remain silent when a continuation of this program threatens to increase the devastating losses it has already experienced. The paper industry is united and firm in its opposition to surrendering its own domestic markets to foreign producers."

Canadian Quicklime Production

OTTAWA—Canadian Government reports production of quicklime for the use of pulp and paper mills in Canada during 1948 amounted to 217,717 tons at $2,434,971 as compared with 198,402 tons at $1,875,699 in the preceding 12 months and hydrated lime for such mills involved 12,600 tons at $142,295 in 1948 as against 14,583 tons at $156,603 in the previous year.

By provinces, such use of quicklime by pulp and paper mills across the country showed the following in 1948, with figures for the preceding year being given in brackets: New Brunswick, 14,816 (13,275) tons, $222,942 ($173,029); Quebec, 105,889 (102,844), $985,537 ($871,700); Ontario, 33,692 (29,180), $268,661 ($215,209); Manitoba, 22,022 (17,312), $233,756 ($159,752); British Columbia, 41,298 (35,791), $724,075 ($456,009).

By provinces, hydrated lime use for pulp and paper mills in Canada showed the following in 1948, with 1947 figures being given in brackets: New Brunswick, 1,861 (2,160), $26,370 ($29,700); Quebec, 7,682 (7,291), $73,762 ($69,251); Ontario, 2,170 (5,086), $24,161 ($57,152); British Columbia, 887 (46), $18,002 ($500).

Lowell Adding Paper Technology

LOWELL, Mass.—A course in paper technology is being added to the curriculum of Lowell Textile Institute, President Kenneth R. Fox discloses. He adds that a $750,000 building will be constructed to house a paper and leather school.

Dr. Geoffrey Broughton of Rochdale, Eng., has been named professor in paper technology, to direct the new courses in this field. Dr. Broughton took his M.S. degree at M.I.T., in 1936, and became a doctor of science in chemical engineering there.

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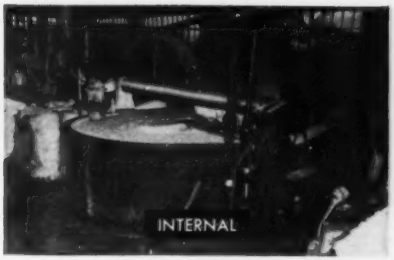
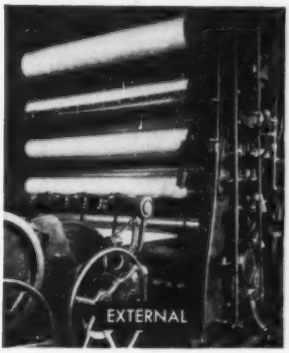
NOPCO* WAX SIZES HAVE THE BEST ANSWER





Whatever type of paper, paper board or fiber board you produce, your sizing problems can be eliminated by using a Nopco-developed size . . . for regardless of which Nopco size you select, you'll find it easy to handle and an outstanding means of improving your products.

Nopco Wax Sizes, developed through exhaustive research, assure positive wax retention on the fibers—thorough and even wax migration through the sheet . . . high sizing efficiency at low sizing cost.

Examples are:

NOPCO 2252 — Ready-to-use Emulsion. A liquid paraffin wax size requiring no additive. Exceptionally efficient for internal application because of its fine particle size and alum sensitivity. Effective in all types of furnishes. When set on the fibers, it is totally inert—and therefore impervious to water conditions, temperature, or any of the common causes of size failure. In the manufacture of glassine, Nopco 2252 produces a slip-easy sheet of extremely satisfactory quality.

An ideal size for *all* mills with small requirements or limited facilities. Available in 55-gallon steel drums.

NOPCO 2251-X — Anhydrous Wax Size. A perfect balance of wax and emulsifier, enabling a stabilized emulsion to be produced ***spontaneously,*** without rapid agitation. A creamy, waxlike solid, ***extremely easy to use.*** Gives exceptionally uniform size. Lowers cost of size preparation, and effects substantial freight savings over finished emulsion types. Available in 70-lb. cartons.

NOPCO 2251-B — Anhydrous Emulsifier. Two parts of Nopco 2251-B emulsify five parts of scale wax, to produce very stable emulsions that may be used either in paper stock sizing or calender sizing operations. Because of the small particle size (½ micron), and the fact that it is precipitated by alum—resulting in excellent retention by the fiber—Nopco 2251-B is one of the most efficient products available for internal (beater) sizing. Assures consistently uniform sizing at low cost. A light tan solid packed in 70-lb. cartons.

AND REMEMBER, back of all Nopco Paper Chemicals stands Nopco Technical Service—ready to give prompt attention to all requests and inquiries; assist you with laboratory data, and recommendations based upon your specific requirements.

Ask your Nopco representative for full details, or write today for complete information.

*Reg. U. S. Pat. Off.

NOPCO CHEMICAL COMPANY, Harrison, N. J.

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NOPCO EVOLVED THRU RESEARCH

Canadian Canal Traffic

OTTAWA—A summary of canal traffic in Canada during June this year shows following freight tonnage, with figures for June a year ago being given in brackets, according to the Canadian Government: Welland Ship Canal, paper, 29,152 (17,093) tons; woodpulp, 594 (5,156) tons; St. Lawrence Canals, paper, 17,518 (10,138) tons; woodpulp, 944 (6,578) tons; Sault Ste. Marie Canals, Eastbound, pulp, Canadian Lock, 18,290 (25,538), Canadian & U.S. Locks, 108,590 (145,787) tons.

Anti-Trust Law Quirks

DAYTON, Ohio — Under cloak of the sweeping generalities in our anti-trust laws, it would be possible for a majority of the Supreme Court to convert our society from a democracy to a fascist state, socialism, a welfare state, a police state, or communism, Harry A. Toulmin, Jr., local attorney, industrialist and author, declares in the foreword of his seven-volume treatise on the anti-trust laws of the United States, released by the publisher, the W. H. Anderson Co., Cincinnati, on September 9.

"It can be done legally," Mr. Toulmin states. "The broad charter of the anti-trust laws . . . gives complete liberty of action to the majority of the Supreme Court. The broad charter of business and commercial regulation possible under these laws, and the several dozen satellite statutes, make it possible to regiment business, industry and commerce, as well as the professions, labor, insurance, and other personal services and savings, into any economic pattern that a minimum of five men may decree. Only Congress, responsible to the public will, remains as the bulwark of our liberties."

"Whether he knows it or not," Mr. Toulmin continued, "practically every businessman in the country, large or small, is today in danger of violating some anti-trust law. What most of them fail to realize is that the original statutes no longer represent the law. They have since been modified by a host of Supreme Court decisions—some of them conflicting, and many carrying vigorous dissenting opinions — which nevertheless have now built up a new body of law, which, for businessmen, is equivalent to a second Constitution. . . . Today semantics may determine whether or not a business action falls under the anti-trust laws . . ."

Among Mr. Toulmin's previous books are "Trade Agreements and the Anti-Trust Laws"; "International Contracts and the Anti-Trust Laws"; and "Trade-Mark Profits and Protection."

U. S. PAPER AND BOARD: PRODUCTION BY TYPE, JUNE 1949

(Tons of 2,000 pounds)

Type of Paper	June 1949	May 1949	June 1948
ALL TYPES, TOTAL	1,552,677	1,543,446	1,837,292
Paper, total	711,964	719,899	832,728
Newsprint	80,501	80,417	75,092
Groundwood printing & specialty paper, total	65,874	61,131	74,918
Printing	48,019	42,434	48,573
Converting	15,029	15,759	23,570
Other	2,826	2,938	2,775
Book paper, total	157,915	175,957	192,320
Printing	111,294	130,598	148,407
Converting	44,896	43,492	38,167
Other	1,725	1,867	5,746
Fine paper, total	85,893	84,822	99,971
Writing, total	66,796	64,492	77,590
Rag (including index)	11,056	10,730	11,276
Chemical wood pulp	55,740	53,762	66,314
Cover and text	5,203	4,858	6,981
Bristols (except rag index)	6,609	7,671	7,803
Thin	5,383	5,690	5,749
Other	1,902	2,111	1,848
Coarse paper, total	206,705	201,355	257,500
Glassine, greaseproof & veg. parchment	10,006	8,968	9,607
Wrapping, total	58,320	58,398	63,133
Unbleached kraft	31,101	28,799	29,601
Other	27,219	29,599	33,532
Bag, total	50,910	47,234	53,607
Unbleached kraft	47,145	43,316	49,355
Other	3,765	3,918	4,252
Shipping sack	34,754	35,393	63,449
Converting, total	52,715	51,362	67,704
Unbleached kraft	25,008	25,148	40,166
Other	27,707	26,214	27,538
Special industrial	20,667	21,733	26,105
Sanitary	72,714	73,224	79,128
Tissue	15,595	15,431	18,517
Absorbent	6,100	5,829	9,177
Paperboard, total	685,919	673,512	780,755
Liners	218,087	220,069	282,586
Corrugating material	99,642	94,853	104,463
Container chip and filler board	22,542	20,659	29,520
Folding boxboard	158,943	157,608	176,040
Set-up boxboard	44,347	43,608	48,061
Cardboard	6,600	6,890	7,149
All other paperboard	135,758	129,825	132,936
Wet machine board, total	11,612	9,139	11,813
Shoe board	3,295	2,845	4,178
Binder board	3,314	2,920	3,975
Other	5,003	3,374	3,660
Building materials made from pulp, total	143,182	140,896	211,996
Building paper	88,734	87,010	111,809
Building board	54,448	53,886	100,187

Canadian Asbestos Paper Figures

OTTAWA—Canadian producers' shipments of asbestos paper stocks during June this year dropped to 3,087 tons compared with 6,262 tons in June a year ago and declined to a cumulative total of only 17,433 tons in the first six months of 1949 compared with 38,557 tons in the corresponding period a year ago, with the reduced production being attributed to labor strike, Canadian Government discloses. Total shipments of asbestos during June, 1949, amounted to 29,222 tons as against 53,975 last year and totalled only 154,727 tons in the first six months compared with 335,530 in same period last year.

Producers' shipments of asbestos during June showed the following, with figures for last year being given in brackets: crude, 35 (9) tons; spinning stocks, 1,090 (2,807); shingle stocks, 4,706 (10,890); paper stocks, 3,087 (6,262); Waste, stucco or plaster, 5,687 (9,995); refuse or shorts, 14,148 (24,012); sand, 469 (nil); total, 29,222 (53,975).

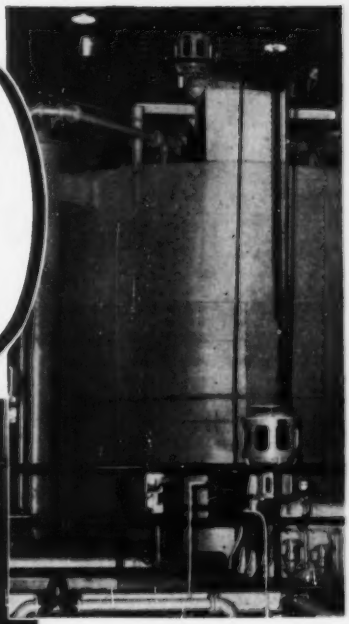
Such shipments in the January-June period showed the following, with last year's figures being in brackets: crude, 205 (377) tons; spinning stocks, 5,378 (14,870); shingle stocks, 26,263 (57,995); paper stocks, 17,433 (39,557); waste, stucco or plaster, 26,543 (59,628); refuse or shorts, 78,436 (164,103); sand, 469 (nil); total, 154,727 (335,530).

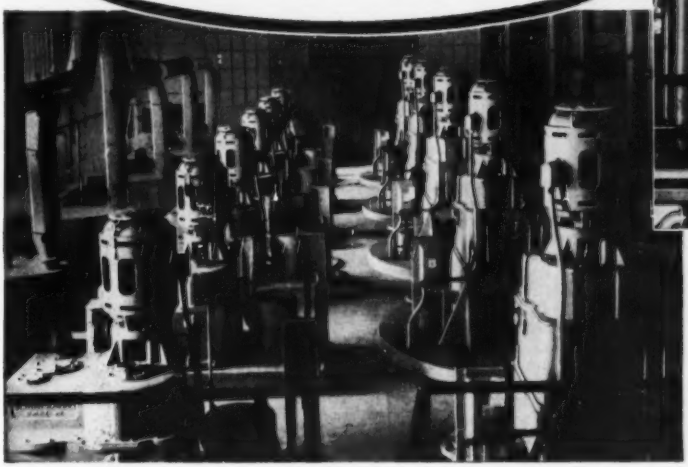
To Reclassify Waterways

BOSTON—New England paper manufacturers have been told that the New England Interstate Water Pollution Control Compact Commission is planning to classify waterways on the basis of their best possible use in the future. Walter J. Shea, Rhode Island State sanitary engineer and acting secretary of the commission, said the body is now only a "planning group." Unlike certain other similar organizations, he said, it has no police powers, although it may recommend action to abate pollution to health departments of the signatory states. The commission has four members—Massachusetts, Connecticut, Rhode Island and New York. The compact was approved by Congress in 1947. Up to now, Mr. Shea explained, the group has classified waterways according to their best public use on the basis of present conditions.

FOR LOWER COST AND BETTER PERFORMANCE

Specify Pacific-Western Vertical Agitator Drives





In the view of the bleach plant (left) of Brown Corporation's La Tuque mill, eleven Pacific-Western DV-60 vertical agitator drives with 75 h.p. motors mounted on top provide the agitation in the high density equipment pictured. Reduction ratio is 70 to 1. Photograph above shows a Pacific-Western TV-60 vertical agitator drive (top) driving a chlorination tower agitator at a 180 to 1 reduction ratio and a second TV-60 unit with similar reduction driving the low density caustic tower in the foreground.

When Brown Corporation, the Canadian affiliate of Brown Company, recently constructed a new bleach plant at its long-established La Tuque, Quebec, pulp mill, skilled Pacific-Western application engineers were called in to provide the driving units. Efficient, precision-made Pacific-Western DV-60 and TV-60 vertical agitator drives were recommended and installed in this mill which has a capacity of 450 tons of bleached pulp per day.

Whether for a large producing unit like the La Tuque mill or for smaller plants, Pacific-Western vertical agitator drives assure double saving. In cost, the modern drives are considerably less expensive than the old-style right angle drives and they take up much less floor space. In performance, Pacific-Western vertical agitator drives provide an ease of maintenance that is the result of their compact design and heat-treated helical gears. Dual oil pumping systems assure proper lubrication with no danger of seepage into the bleach cells.

Over fifty years of sound gearmaking and designing experience are behind Pacific-Western's knowledge of the paper industry. Whenever you have a problem in power transmission, call on Pacific-Western. Trained specialists are always ready to give careful study to your operation. In addition, a wide variety of open gearing as well as speed reducers and increasers can be supplied from stock. Let us quote you promptly on your needs.

Write, wire or phone your nearest Pacific-Western Office

Plants at SEATTLE, SAN FRANCISCO and LOS ANGELES

Sales Representatives at PORTLAND, SALT LAKE CITY, HOUSTON and VANCOUVER, B. C.

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GEAR PRODUCTS

Canadian Carloadings

OTTAWA—Cars of revenue freight loaded on the Canadian railways showed 3,512 cars of woodpulp and paper for the week ended September 3 compared with 3,631 cars in the preceding week or 4,029 in the similar week a year ago, the Canadian Government reports.

The Eastern Division accounted for 3,077 cars of such freight in the week ended September 3 as compared with 3,188 cars in the previous week or 3,484 cars in the similar week of last year, with the Western Division showing 435 cars in the week ended September 3 as against 443 cars in the preceding week and 545 cars in the similar week a year ago.

Such car loadings of woodpulp and paper from the first week of 1949 until the week ended September 3 declined to a cumulative total of 137,061 cars as compared with 149,454 cars in the similar period of last year. The Eastern Division showed a decrease this year, amounting to 119,687 cars as compared with 130,676 cars last year in the corresponding period, and the Western Division accounted for 17,374 cars this year as against 18,778 cars a year ago.

22nd Chemical Industries Exposition

NEW YORK—The 22nd Exposition of Chemical Industries will be held in Grand Central Palace, November 28 to December 3.

Interest in the exposition is being stimulated by increasing competition and current trends in business, the sponsors report, stating that Paper is in the top ten groups showing the greatest rate of growth in demand for chemical products. The management is under the International Exposition Co., with permanent headquarters in Grand Central Palace. Charles F. Roth is manager; E. K. Stevens, associate manager.

Bagpak Sales Set-Up Revised

NEW YORK—International Paper Co.'s Bagpak division has named Hugh O'Neill sales representative in northwestern Ohio, northern Indiana and Michigan, except the Michigan peninsula, with offices at 2408 Terminal Tower, Cleveland. W. W. Hendrickson, who heretofore served this territory, continues as sales representative, working out of the same office, in those sections of Ohio and Indiana not covered by Mr. O'Neill, as well as in Kentucky and in Buffalo and Niagara Falls, N. Y. H. D. Wellington will continue to cover the Michigan peninsula as part of his territory working out of 400 West Madison street, Chicago.

Singer Co. Incorporation

MONTREAL—Singer Paper Co. Ltd., has been incorporated with authorized capital as 100,000, npv shares. It is a private company.

State Pollution Control Aid

WASHINGTON, D.C.—A number of states are making application for funds to control pollution, the Federal Security Administration reports. This is the water pollution control program which was provided for in the Barkley-Taft Anti-Pollution Act passed last year. Several weeks ago allocations from the $2,200,000 appropriations were announced by FSA Administrator Oscar R. Ewing. A specific $850,000 in grants are allotted to states to study water pollution which results from industries dumping their wastes into the Nation's waters. Not all states have set up programs. Fewer still have made application for funds. Funds, however, will not be turned over to the States until applications have been filed with the Public Health Service and the programs approved, it is stated.

ASSOCIATIONS • • •

Carborundum Hosting TAPPI's

WHEATFIELD, N. Y.—The first meeting of the current season of the Western New York Group, Empire State Section of TAPPI, will take place on October 12 at the Coated Products Division of the Carborundum Co. on Walmore road.

A mill visit (beginning at 3:00 P. M.) through the Coated Products Division will precede the dinner. The film, "Romance of an Industry" will be screened after the mill trip by E. D. Lackey, assistant director of industrial relations, Carborundum Co. Dinner will follow at 6:00 P. M. in the Carborundum Co. cafeteria.

W. W. Barrett, sales engineer in charge of paper mill abrasives, Carborundum Co., will address the group on "Pulpstones". Mr. Barrett, a graduate of the University of Minnesota, was formerly with the Kimberly-Clark Corp. mills in Niagara, Neenah, and Kapuskasing. For the past 21 years he has been with Carborundum.

Mich. Superintendents' Oct. Meeting

KALAMAZOO—Richard H. Peeters of the local plant of the St. Regis Paper Co., who is secretary of the Michigan Division of the American Pulp & Paper Mill Superintendents Ass'n., Inc., reports that the October meeting of the division will be held at Hotel Harris, October 20, at 6:30 p. m.

R. M. Leighton of Stowe-Woodward, Inc., Newton Upper Falls, Mass., will speak on rubber rolls for paper and coating machines. His talk will be followed by a panel discussion of the subject. Panel members, in addition to Mr. Leighton who will serve as moderator, include Harry Abrams of Raybestos-Manhattan, Inc., Manhattan Rubber Division, Passaic, N.J.; Glen Sutton, Sutherland Paper Co., Kalamazoo; Louis Scheid, Watervliet Paper Co., Watervliet, Mich.; Harrison Kindig, Mac Sim Bar Paper Co., Otsego, Mich.; and Al Lutz, B. F. Goodrich Co., Akron, Ohio.

ASTM Committee D-14 Meet

PHILADELPHIA—The fall meeting of A.S.T.M. Committee D-14 on Adhesives is to be held on October 17-18 at the ASTM headquarters, 1916 Race street.

An invitation to non-members who may be interested in participating in the work of the Committee to attend is again extended.

The work of Committee D-14 embraces the entire field of adhesives and is not limited to any special group of the more widely used material.

Information concerning the Committee and meeting may be obtained from George W. Koehn, secretary, ASTM Committee D-14, Research Laboratories, Armstrong Cork Co., Lancaster, Pa.; J. H. Wills, membership secretary, Philadelphia Quartz Co., 121 South Third street, Philadelphia 6, Pa.; or from the ASTM Headquarters.

Aiding Paper & Twine Ass'n.

CINCINNATI—Neil E. Nash, vice-president of the Nekoosa-Edwards Paper Co., Port Edwards, Wis., and Frank T. Roach, sales manager of the Lily Tulip Cup Corp., will author the first two of a series of letters on "What Mills, Merchants and Converters Can Do to Cooperate With Each Other in Getting Efficient Distribution of Paper and Paper Products," to be published to its membership on the fourth Monday of each month by the Paper & Twine Ass'n., beginning with September 26.

Boston SAPI Luncheon, Sept. 26

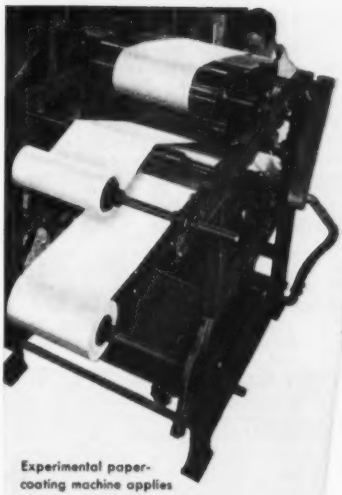
BOSTON—First luncheon of the recently organized Boston Group of SAPI is set for noon, September 26 at the Parker House, when Benjamin F. Stacey, industrial analyst of the First National Bank of Boston will speak on "New England's Prospects and Problems."

Human Relations Guide

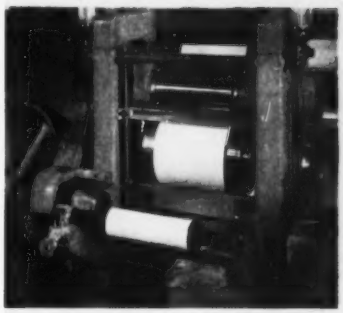
NEW YORK—The American Management Ass'n. on September 15 published a 200-page "Supervisor's Management Guide" in eight sections and 20 chapters prepared by 17 operating executives and specialists to assist supervisors, foremen and other operating executives in industry to apply new developments in management methods for improving human relations in business.

The Guide presents case histories and discussions of successful supervisory programs and techniques developed by companies in all types of industry.

Published by AMA as a service to the industry, The Supervisor's Management Guide is a sequel to AMA's previous supervisory handbooks "The Foremen's Basic Reading Kit" and "The Management Leader's Manual". The eight sections of the Guide are: (1) Constructive Work Relations; (2) Morale—The Keystone of Sound Employe Relations; (3) The Qualities of



Experimental paper-coating machine applies specific TITANOX formulations.



This pilot calender is another piece of test equipment used to prove the value of TITANOX coatings.

This proof press is the final "proving-ground" for TITANOX formulated coatings. Results here show TITANOX-RCHT assures clear printing and vivid pictures — minimizes "show-through."

To help you make

Better Coated-Papers

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the brightest name in pigments

In our Technical Service Laboratory experimental and production tests with paper-coating equipment are constantly being run to develop more effective coatings. In these tests and in large scale runs in the paper industry TITANOX-RCHT has proved its value for making light-coated paper print like heavy.

This rutile-calcium pigment imparts great opacity and brightness to papers and permits the use of modern light weight, thin coatings. The trend to this type of coating make these advantages of TITANOX-RCHT important to you:

Highest opacity and brightness at lowest cost.
Minimizes "show-through" and after-yellowing.
Overcomes transparency from wax, resins, etc.

Our Technical Service Laboratory with modern paper-coating equipment stands ready to help you solve your paper-coating pigment problems. Write: Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; 104 South Michigan Avenue, Chicago 3, Ill.; 2600 South Eastern Avenue, Los Angeles 22, Calif. Branches in all other principal cities.

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Leadership; (4) Developing Skill in Communication; (5) Getting Results from Conference Training; (6) How Do You Rate as a Supervisor; (7) Management Policy and Goals; and (8) A Human Relations Reading List.

The twenty chapters cover the basic principles of sound human relations, supervisory attitudes and practices and their effects on worker morale and productivity, the executive responsibility for developing morale, dealing with emotional problems on the job, the art of speaking effectively to employees, tests for determining competent supervisors and executives, and related subjects.

Maine-N. H. TAPPI Meeting

PORTLAND, Maine—The Maine-New Hampshire Section of TAPPI will hold its Fall meeting at the Lafayette hotel, October 21-22. Theme of the meeting will be "Chemical Reinforcers as Applied to Paper Making." The following program has been arranged:

Friday, October 21

1:30 to 2:30 p.m. Registration.

2:30 p.m.—(1) "Trend of Plastics in the Pulp and Paper Industry," by W. H. Aiken, assistant manager, chemical division, Goodyear Tire & Rubber Co. (2) "Use of Natural and Modified Starches in the Beater," by O. R. Steffens, Penick & Ford, Ltd. (3) "Manufacturing of Plastic by the Beater Addition Process," by Francis H. Snyder, president, of Snyder Chemical Co. (4) "Influence of Surface Properties of Fibers on Paper Making," by Edward F. Thode, assistant professor of chemical engineering, University of Maine.

7:00 p.m. Dinner followed by entertainment.

Saturday, October 22

9:30 a.m. "Application of Radio Activity Techniques to Paper Making," by A. P. Schrieber, Tracer Laboratories, Inc., Boston. This paper will be followed by a panel discussion on "Starches and other Beater Additives." It is planned to adjourn the meeting at 11:30 a.m. to give those interested in attending the Bowdoin-Colby football game at Brunswick, and the University of Maine-Bates game at Lewiston, time to get to the games. Starting time of the games is 1:30 p.m. Those attending the football games should procure their own tickets. No tickets will be available at the convention.

The Technical Program Committee consists of George Day, Brown Co., Berlin, N. H.; Richard S. French, Keyes Fiber Co., Waterville, Maine; and John B. Calkin, director, department of industrial cooperation, University of Maine.

The Local Arrangements Committee consists of Joseph J. Thomas, S. D. Warren Co., Westbrook, Maine; Harold E. Pratt, Pejepscot Paper Co., Brunswick, Maine; and Fred H. Frost, S. D. Warren Co., Westbrook, Maine.

Specht Visits Europe

Tells TAPPI of 12-Country Tour

NEW YORK—Speaking to 30 members and guests of Metropolitan TAPPI at the first Fall meeting at Fraunce's Tavern on September 13, Harry Specht, vice-president of Eastwood-Nealley Corp., Belleville, N. J., manufacturer of fourdrinier wires and other paper mill equipment, gave thumbnail sketches of his recent 12-country, 8,000-mile tour of Europe. Despite the devastation and economic ills which saddened him, Mr. Specht was impressed by the rapid strides towards recovery and by the spirit of the people. "They know how to live in Europe, we need to ponder whether there isn't much more to life than chasing the dollar", Mr. Specht said.

Starting at Le Havre, Mr. and Mrs. Specht and their daughter motored through France, Italy, Switzerland, Germany, Luxembourg, Belgium, and Holland getting first-hand impressions of economic conditions and studying the people. In all countries except Italy, roads were in excellent condition, though Germany's four-to-six lane "auto-bahns" are "ghost roads", only an occasional car or cycle being sighted.

Rapid recovery was noted throughout France, the farms prosperous, the countryside beautiful, and not much general effect of the war visible, except along the shoreline and at St. Cyr, where destruction is wide.

War damage in Italy is extensive, Mr. Specht said. Much of it was wrought by the retreating Germans, much by the advancing American armies. Because of the Marshall Plan aid, the Italians appear to have forgiven our share of it as a part of war, though a great deal of money will be required to rebuild their homes. He feels that Communism is finished in Italy and that in these people we can count on cooperation.

Passing from enjoyment of the simplicity and industry of Switzerland, the Spechts found the awful destruction of Germany more than they could stomach. Noting that the stores now have desirable stuffs for sale, that the eating places can feed one well, Mr. Specht's general comment on Germany was that "things are improving at a terrific rate".

In England, Ireland and Scotland, business calls on manufacturers of paper-mill equipment were worked in with social calls. Speaking in some details of his reaction to all he observed, Mr. Specht believes an early election will replace the Labor Party with a coalition of Labor and Conservatives; that the people are now loyal to the Government they put in, but that they are fed up with the Labor Party with all its promises. Impressed with the people of whom he spoke with admiration, Mr. Specht said, "There's a lot of fight left in them yet." England is hurt and suffering, he stated, and cannot avoid a financial crisis.

No Love for Marshall Plan

All of these European countries love America for the Marshall Plan, Mr. Specht found, but they hate the stipulations of the Plan which require them to buy our surplus with Marshall Plan dollars. "We must get these people back on their own feet as quickly as possible. We cannot sell them until they do stand alone", Mr. Specht said.

European Market Potential

Observing the paper industry and suppliers, Mr. Specht noted much progress in England. She will however have to sell finished merchandise to those countries who can supply pulp and other raw materials without loss of dollars, a situation which creates bilateral trading.

Under the Council of Europe program, he explained, these countries will build an exchange of merchandise in Europe and western Europe. Before many years, he sees growing trade between western Europe nations and Russia and her satellites. They need each other, he said. It seems natural therefore to assume that America will have little place in selling that market which we formerly supplied with food products and raw materials, some automobiles and machinery. America's primary job is to develop an intra-America market, Mr. Specht believes—from Canada to Brazil. (The Argentine will be one of our strongest competitors in the European market). Here is our opportunity for opening up new trade among the 250 million peope in North and South America—contrasted with western Europe's 150 millions.

But if we expect to export, we must be prepared to import on some healthy basis which will bring about a better balance of trade, Mr. Specht stated.

Dobrow Addresses N. Y. SAPI's

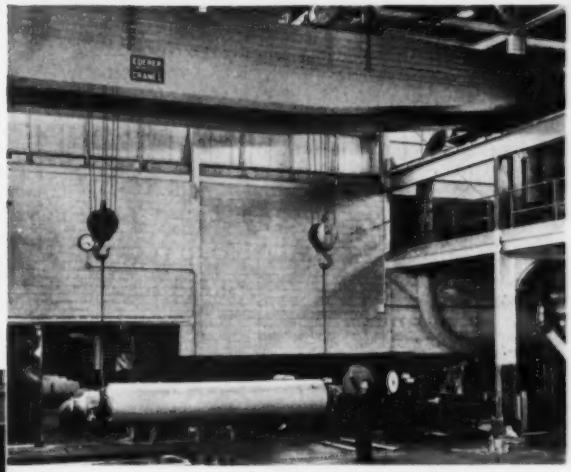
NEW YORK—The Eastern Group of SAPI held its first Fall meeting and luncheon at Midston House, September 19. Featured speaker was Morris C. Dobrow, executive secretary of the Writing Paper Mfr's. Ass'n.

Social and Economic Aspects of the Pulp and Paper Industry

Excerpts from statement by E. W. Tinker, executive secretary, American Paper & Pulp Ass'n, at TAPPI Fall Meeting, Portland, Ore., September 15.

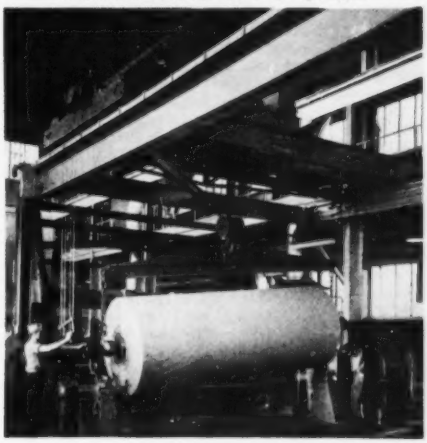
The capital investment required in the paper industry per work unit is the highest of any in the country and wages are relatively high because of the skills required. Among all industries the pulp and paper industry ranks at the top from the standpoint of stability of employment. Our requirements for pulpwood approximate 20 million cords a year. It is impossible to measure accurately the number of worker units required to produce this

EDERER CRANES



Machine room crane, two trolleys, 24-ton capacity—with 49'8" span that can be extended later to 75'

Canting crane, 6-ton floor-controlled fixed hoist for releasing jammed logs. In background is 35-ton floor-controlled stand-by crane for servicing chipper



Reel crane, 8-ton, floor-controlled fixed hoist with spreader to turn rolls of paper in any direction

CUSTOM-BUILT for the Pulp and Paper Industry

These EDERER cranes are typical of the equipment EDERER custom-builds to job requirements for such pulp and paper industry leaders as St. Regis Paper Company, Weyerhaeuser Timber Company, Puget Sound Pulp & Timber Company, Soundview Pulp Company and Crown-Zellerbach.

Lifts, spans and capacities are engineered for your specific industry requirements . . . even to building "half cranes" that may be extended to twice their spans with future plant expansions . . . low headroom, close clearances, special jobs characteristic of the industry are everyday jobs to the EDERER engineer familiar with your particular requirements. Maximum economy and efficiency are the result.

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wood because a large percentage of it is the result of part time operations and particularly seasonal operations on farms. However, it is estimated that it furnishes a substantial part of the livelihood of some 300,000 workers. All-in-all, a very conservative estimate of the employment afforded through the operation of pulp and paper mills would be 1,400,000 individuals. This means that between five and six million people are dependent upon the industry for a livelihood.

The above figures do not include more or less independent operators whose activity is dependent upon the wellbeing of the pulp and paper industry. To illustrate, the industry pays approximately six per cent of the national bill for freight paid to the railroads. We are the largest customers of the naval stores industry. You are well aware of our enormous requirements for chemicals, fuel, and other raw materials.

Because of the very large capital investments required and the need for accessible supplies of raw materials, the pulp and paper industry is one of the country's least migrant industries. Over the years, because of these factors, large sections in the United States have become, to an increasing degree, dependent upon pulp and paper mill operations for their economic life. I cite the Northern Lake States, a large portion of Northern New England, entire regions in the South, and some of the major watersheds of the Pacific Northwest. There are some 176 communities in the United States that are 50 percent or more dependent upon the operation of our mills for their continued existence.

Vast additional supplies of paper and board have resulted from the development of new sources of wood supply in the last 20 years. Since 1929 overall paper and board capacity has increased by 60 percent. Each region has shown an increase running from over ten percent in New England to 570 percent in the Southern region. The Pacific Coast capacity increased almost 80 percent in these 20 years.

I have no doubt that you are aware of the position of the paper industry in the scheme of things. However, at the risk of repetition, it seemed desirable to place before you some of these major considerations as a reminder that the industry is of great importance in the national economy.

It is insufficient for you and I who live in intimate contact with the industry to have this information because it is more and more essential that public understanding be had. Certainly we should expect that communities wholly or in part dependent upon our operations be fully informed.

It will be no news to you that there is a strong trend towards centralization of public controls and a growing inclination to legislate the conduct of industry affairs. If these trends are not reversed the cold hard fact is that local authority, with its intimate knowledge of local conditions, will be frozen out of the picture and management will be compelled to give more and more consideration to the risks involved in plans for expansion and development or even in normal operations with the ever-increasing threat of unwarranted public controls.

While it is unpleasant to think of, it seems necessary that you and I as employes of industry recognize the fact that somewhere along the road we have done an extremely poor job in selling industry to the public as a benefactor. In general we live in an atmosphere saturated with the socialistic idea that private industry is something in the nature of a public enemy and requires shackling in one form or another to protect the public interest. In my opinion, this situation has been brought about because of a reluctance, and a natural one, on the part of management to take the public into its confidence by keeping it fully informed of the industry's problems, its merits, and its benefits.

If there are five or six million people in the United States dependent directly upon the operations of the pulp and paper industry, this should be a matter of general public information and yet I am constantly surprised and disappointed at the lack of knowledge and appreciation on the part of individuals, and particularly individuals in Washton, to whom the welfare of our industry should be a matter of major concern.

Very recently I had an opportunity to discuss with a group of faculty members and graduate students, at the University of Michigan, the subject of governmental participation in conservation moves. I presume I was given this opportunity because the pulp and paper industry uses large quantities of our natural resources and particularly timber. I made the statement then and I repeat it now, that to my knowledge there is not a company in the pulp and paper industry that is engaged in the manufacture of pulp that is not making plans for a permanent supply of wood to maintain their operations in perpetuity.

It is inevitable that the pulp and paper industry will lead the way in forest conservation in the United States and unless the ability to plan for the future that has been so characteristic of executives in the industry in the past has suddenly disappeared, the expansion of this industry or its stability will never be curtailed because of a shortage of raw material in the form of wood.

No statement discussing the social and economic aspects of the pulp and paper industry would be complete in these modern times without relating the industry's position to national and international affairs. The pulp and paper industry, as well as other industries, has great difficulty in obtaining understanding in Washington circles. It appears to be the fashion to view industry contacts and consultations with suspicion and to undertake them with reluctance. The situation is not particularly different from that which existed during the war when the industry so laboriously struggled to get appreciation of the facts with regard to the essentiality of its products and the requirements that would have to be met if these products were to be produced.

Within the last month I listened to a presentation by three Congressmen from the State of Washington to the Administrator of the Economic Cooperation Administration and an exceptionally effective job was done in this particular instance. There was no room for doubt that these gentlemen knew the facts with regard to the situtation. If the same knowledge and understanding were more general it would be reflected in facilitating the industry's operations and expanding the public benefits that would accrue. It is an odd situation but those of us who make a study of these broad questions and particularly governmental relationship cannot but be impressed with the close working relationships that exist in other democracies compared with the reluctance to accept industry participation in this great democracy of ours. One can only hope that the situation is temporary and that when there is recognition of the social and economic importance of the pulp and paper industry the welfare of the industry will be accepted as essential to the welfare of the entire country and of the workers within the industry, such as you and I.

A word with regard to the future of the pulp and paper industry in the United States: Given an even break and assuming that the industry will not be disrupted in its natural development there seems to me to be no question of its potentialities. I am not prepared to state whether we will require 30 million tons of paper and paperboard in the year 1960 or 40 million tons. However, I believe it is inevitable that there will be a large increase in our requirements. I know that there are men in executive positions in the industry that have appreciation of this fact. It does not take too long a look back to recognize that the situation 15 or 20 years ago was recognized by the Cullens, the Lukes, the Meads, the Zellerbachs, the Sensenbrenners, the Everests, and many other men of vision. I believe the same vision and the same courage exist today, but today this vision must include consideration of the environment in which industry in the United States will live 20 years from now. A thorough-going program of cooperation between Government and industry in my opinion would be the most stimulating factor that could be conceived of in assuring maximum future social and economic benefits to the people of the United States. We should only strive for understanding that will bring about this cooperation.

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PAPER

SUPPLIERS . . . . . .

The United Chromium, Inc., organic coatings division, New York, has developed rubber-like plastic materials, said to possess various chemical properties lacking in both natural and synthetic rubbers. These new materials are known as Unichrome Plastisol and Organosol Compounds. Their advantages are reported to include resistance to a wide variety of chemicals and corrosives, and to mechanical abuse such as abrasion; high dielectric strength, and easy handling. They are available in a variety of colors, in paste-like form. The plastisols contain 100 percent solids, while the organosols contain a small percentage of liquid solvent or diluent. They can be molded or applied as coatings to paper, fabric or metal by dipping, spraying, or brushing. Upon baking at a temperature of about 350°F. for 20 to 30 minutes, the materials set and take on a rubber-like appearance. Coatings from .003″ to .25″ may be obtained with a single application.

Polychemicals Department is the newly adopted name given the combined Ammonia and Plastics departments of the Du Pont Co., Wilmington, Del., with the consolidation effective October 1. Dr. E. D. Ries, general manager of the new department, says that Dr. J. A. Almquist, who has been assistant general manager of the Plastics department since 1943, will be an assistant general manager of it, along with Dr. Robert L. Hershey, who has been assistant general manager of the Ammonia department.

Dr. Paul S. Pinkney of Wilmington, formerly with the DuPont Company's chemical department at the Experimental Station, Wilmington, Del., has been transferred to the technical division of the electrochemicals department, Niagara Falls, N. Y., where he will be a supervisor in the technical division laboratories.

Dudley K. Bailey, until recently a member of the sales engineering staff of the Weston Electrical Instrument Corp., Newark, N. J., has joined the sales staff of the Beedle Equipment Co., Cincinnati, which is the district representative in that city for Weston products.

ANSUL UPS MARS, YAEGER

C. Victor Mars, (left) former sales manager of the industrial chemical division of the Ansul Chemical Co., Marinette, Wis., has been named manager of the New Product department. . . . Robert J. Yaeger (right) succeeds Mr. Mars as industrial chemical sales manager. . . . Mr. Mars, who will coordinate new product and development work which has, until now, been performed by various departments, has been with Ansul for 18 years. . . . Mr. Yaeger, has been with the firm for four years.

Hendley Blackmon has been named assistant manager of Engineering Ass'n. activities for the Westinghouse Electric Corp. He will be headquartered at the East Pittsburgh Works and will assist Frank Thornton, Jr., manager of Engineering Ass'n. activities. Mr. Blackmon joined Westinghouse in 1925, but from 1945 until recently was identified with several industrial publishing organizations.

SPECIALTY SALES MGR.

L. R. Bigler, newly named manager of the specialty sales division of the Griffith Rubber Mills, Portland, Ore., manufacturer of roll covering for the paper industry.

Milwaukee Cutter & Sorter Co., 1720 East Capitol drive, Milwaukee, is offering a precision unit Cutter-Sorter that cuts, sorts, counts and saves all seconds of paper in sheet form at running speeds up to 250 feet per minute. On two-side sorting, special lights permit two girl operators to look directly into the sheet under side. This machine was designed for finishing rooms where sheets are manually inspected. Range of the unit is up to 78-inch-wide rolls and a long grain cut up to 78 inches. The machine is available with slitter, if wanted. A smaller unit is also available for mills where the operation consists more or less of purely fanning. On it, seconds are discarded into a broke box.

General Electric Co., Schenectady, N. Y., exhibited its new beta-ray thickness gage and ultrasonic generator at the Instrument Society of America Show at Kiel Auditorium, St. Louis, September 12-16, this being their first public showings. The beta-ray device uses a stream of electrons to measure continuously a moving sheet of material. A plastic film was run through the gaging head and its thickness indicated on an enlarged scale. The ultrasonic generator is a completely self-contained laboratory instrument which produces sound waves pitched considerably higher than the range of human hearing. It is expected to be a valuable research tool in the study of ultrasonic energy applications. The company also had operating displays of its metals comparator, turbidimeter, and strain gage equipment. A photoelectric recorder was shown as well as vibration measuring apparatus, standard roughness specimens, a new load visualizer, and a series of temperature indicating devices.

H. K. Ferguson Co. has completed construction of one of the nation's largest and most modern industrial research centers for the *Carbide & Carbon Chemicals Corp.* Situated on a 140-acre site near Carbide's South Charleston, W. Va., plant, the laboratories will be the center of the company's fundamental research operations in organic chemicals and resins. The program will concentrate on the design of new chemical molecules with the goal of developing new Flexol plasticizers, synthetic resins, and organic chemicals. Process development will also be carried on at the center in four large buildings to be occupied in the future. The main laboratory building is a three-story, T-shaped structure of brick and steel, 325 feet long and 96 feet deep. It contains 69 individual laboratories, 48 offices, a large-scale laboratory and an auditorium seating 125 persons.

LUKENS ACQUISITION

Harry W. Fiebert has joined the development engineering staff of Lukens Steel Co., Coatesville, Pa., as a sales engineer. . . . Formerly he was chief engineer, Eastern division, Container Corp., of America.

DOW UPS BRANCH

C. Benson Branch of the plastic division of Dow Chemical Co., Midland, Mich., has been named manager of the technical service and development division. . . . He has been with Dow for 12 years.

WILLIAM F. RINEHART

—now selling paper mill rolls for United Engineering & Foundry Co., Pittsburgh. . . . Mr. Rinehart was formerly with the Lobdell Co., Wilmington, Del.

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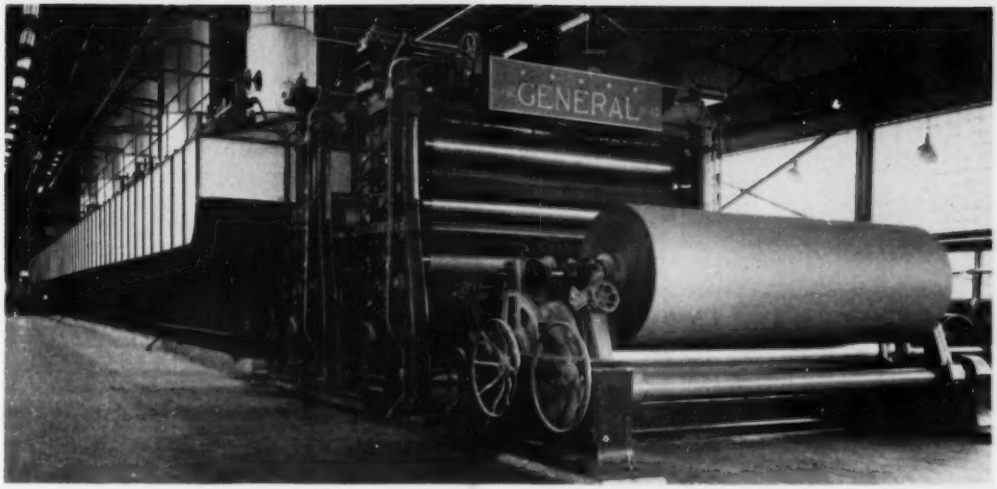


Figure 1. Overall view of finishing end of The "General" at Fairfield Paper & Container Company, showing Black-Clawson uniform speed reel with 42" drum, two Black-Clawson calender stacks and dryer section.

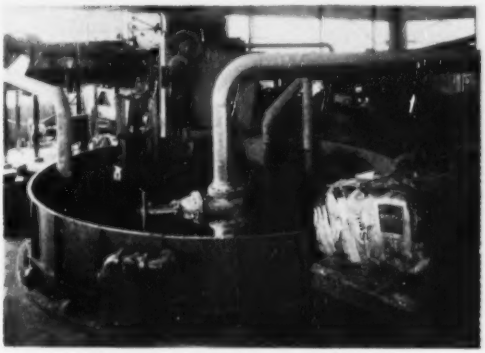


Figure 2. 20 foot Continuous Hydrapulper equipped with Regulator Box (at right) Ragger (center left) and Junk Remover (center background). This hydrapulper serves the 150-ton Filler System.

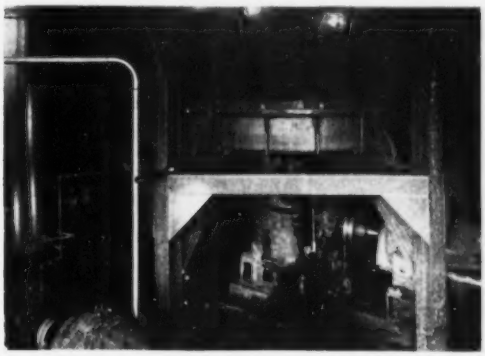


Figure 3. Basement view of 20 foot continuous Hydrapulper on Fairfield Filler System. Regulator box with eight inch HMS Pump at lower left delivers stock to Grit Remover inlet.

THE FAIRFIELD

"GENERAL"

One of the newest and most modern mills in the Midwest is that of The Fairfield Paper and Container Company, Baltimore, Ohio, not far from Columbus.

This is an entirely new mill. Its operation covers a matter of months only. Its objective is 150 tons of test liner and chipboard per day. From Hydrapulpers to reel it is Black-Clawson, Shartle, Dilts equipped.

The entire stock preparatory department, which comprises a complete Hydrapulper Filler System and a complete Hydrapulper-Hydrafiner Liner system, was engineered by the Shartle and Dilts Divisions of Black-Clawson.

The forming end, the paper machine itself, is a 146" five-cylinder unit of the very latest design. It, incidentally has been named "The General" by the operating personnel in honor of three Union generals, all of whom were natives of the county in which the mill is located, General Sherman, General Sheridan and General Custer.

This new mill is housed in an L-shaped brick and glass block structure adjoining the old No. 2 Machine Room and box plant. The overall length of the structure is approximately 500 feet. The machine room, occupying the shank of this L-shaped structure, is 400 feet long by 50 feet wide. The stock preparatory room, housed in the lower part of the L, is 100 feet long by 120 feet wide.

Stock Preparation—Filler System

The baled mixed paper stock used for filler is charged by fork lift-truck into a 20' diameter continuous Hydrapulper. This Hydrapulper is equipped

Figure 4. Basement view of 16 foot Batch Hydrapulper on liner system. Eight inch Class "DS" Pump at left delivers the liner stock to liner cycling chests.

Figure 7. Jordan section showing three No. 3 and two No. 2 Miami Jordans. Jordan regulating head box shown above jordans, mixes, meters, and distributes stock by gravity to proper jordan.

Figure 5. View of Filler Stock Cleaning System, showing two Classifiners receiving stock from primary section of grit remover. Accepted stock returns to second section of grit remover by means of two elbow pipe connections on either side of Classifiner. Rejects are discharged to rejects mix tank shown at right. Here rejects are diluted by white water and sent to disintegrator pump (not shown) for treatment before being delivered to selectrap at top for final separation of floating rejects from paper fibres.

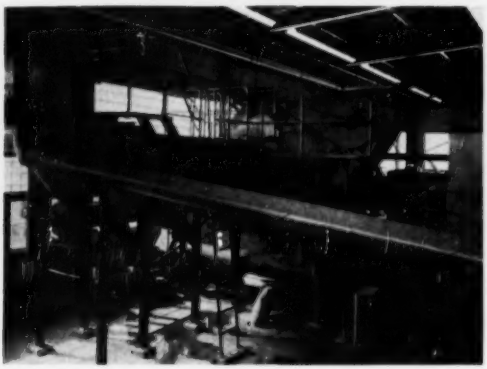


Figure 8. 150-ton grit remover on Filler Stock Cleaning System at Fairfield Paper & Container Company. Cyclone inlet at left delivers stock to primary section of grit remover. Pipe across foreground returns overflow to 20 foot Continuous Hydrapulper. Lower horizontal pipe delivers semi-clean stock to Classifiners (not shown) for further cleaning before accepted stock is discharged to secondary section of grit remover. Flight conveyors discharges grit to basement via hopper and pipe shown at center right.

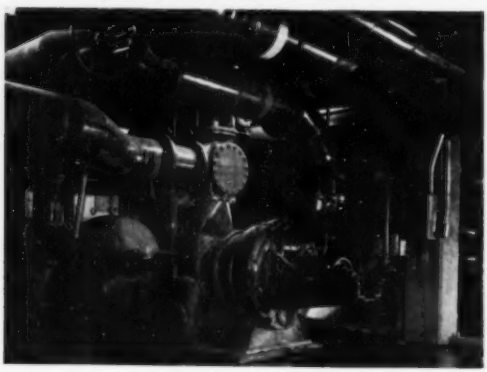


Figure 6. View of No. 6 Hydrafiner in liner hydracycling system. 16 foot Batch Hydrapulper in background. All flows in this phase of the liner system are directed from control panel on operating floor by means of motorized Hope type rotary valves shown in this and preceding photographs.

with a Junk Remover for continuously removing the heavy junk contained in the mixed paper bales and a Ragger that removes in a continuous rag rope all the wires, strings, and rags.

The slushed stock is discharged through a regulator box to a Shartle Class "DS" Pump which delivers it in semi-cleaned condition to a Grit Remover system for further cleaning. This cleaning system consists of a two-stage grit remover, two Dilts Classifiners, a disintegrator pump, and a selectrap.

The stock enters the cyclone inlet of the grit remover primary section, where it is diluted to about 1% of consistency and is then discharged to a settling area, where the heavy grit is settled out and removed.

The stock is then discharged to Classifiners where it is further screened to remove floating trash, such as match sticks, orange peels, etc.

This screened stock is then discharged to the secondary grit remover where it is still further diluted, to ½% consistency, to facilitate settling of the very fine particles of grit or other heavy materials.

Figure 9. Wet-end of the "General". The five vats shown are of the over-flow type, equipped with "HYDRONAMIC" inlets. The cylinder molds are 60" diameter and the couch rolls 21" diameter, rubber covered.

Figure 11. View of Hooded dryer section. Dryer section consists of: 4 sections of double deck 48" Black-Clawson Seamless Dryers, 66—48" paper dryers, 4—48" felt dryers, and 1—24" pony dryers.

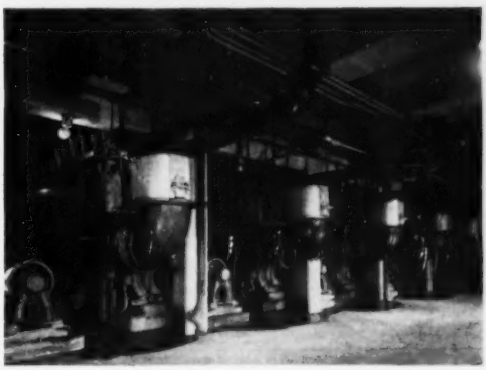


Figure 10. Basement view under wet end of machine, showing five "Hydronamic" inlets installed on Black-Clawson five-cylinder board machine at Fairfield Paper & Container Company, Baltimore, Ohio. These inlets are of stainless steel, all metal construction.

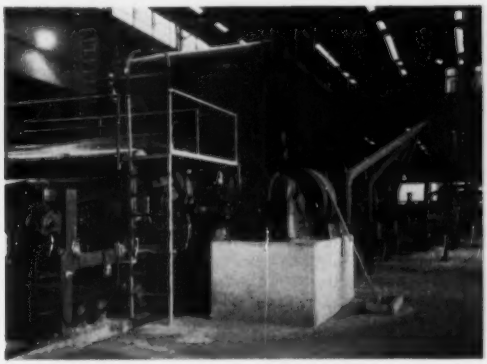


Figure 12. Drive side of wet-end showing machine regulating head box with feed lines to each vat. Two Selectifier Screens on liner vat are shown in background. Main press—28" rubber covered bottom suction roll, top roll 24" brass covered, driven by No. 1 Black-Clawson enclosed spiral bevel gear drive.

The fine and heavy grit thus settled out in the two sections of the grit remover is removed continuously by a helicoid conveyor, located at the bottom of these settling sections, and is finally delivered to flight conveyors for discharge from the system.

An interesting or unique feature of this system is that the heavy junk from the junk remover, the rag rope and the rejects from the cleaning system, are all discharged at one central point, thus making for greater cleanliness and orderliness in the stock preparatory room.

Getting back to the Classifiners, the rejects there screened are discharged through a header to a mix box, where they are diluted and then recirculated through a disintegrator pump. This pump loosens clinging fibers from the rejects and passes them to the Selectrap, a conical screen, where the papermaking fibers are reclaimed and the foreign matter is ejected.

The thin, cleaned filler stock is finally thickened to jordaning consistency of 3½ to 4% by three Shartle air-operated thickeners and pumped to the filler dump chest.

The filler stock is now ready for metering and dilution before entering the Hydronamic inlets.

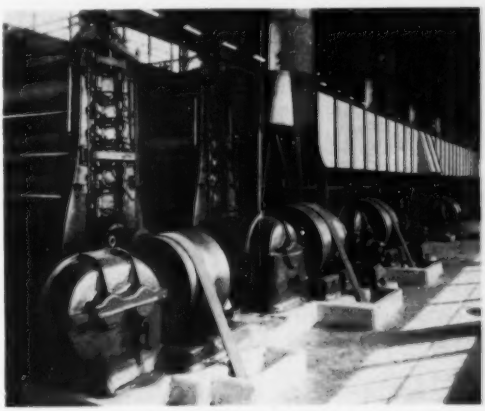


Figure 13. View of drive side of machine from dry end. No. 'O' enclosed spiral bevel gear drive in foreground drives the uniform speed "Pope Type" reel. The two calender drives are Black-Clawson No. 2 spiral bevel gear drives with calender reverse mechanism. Drives are equipped with Airflex clutches controlled from front of machine.

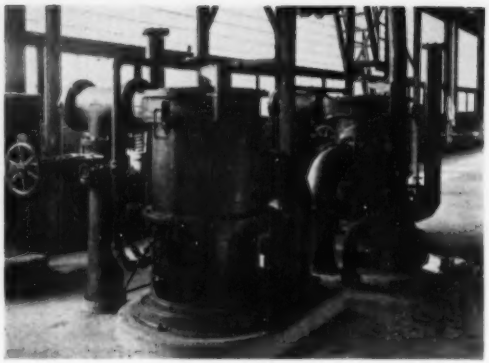


Figure 14. Two Miami Selectifier Screens serving liner stock vat.

Liner System

The clean pulp used for liner is defibered in a 10′ diameter batch Hydrapulper and dumped vie a Shartle Class 'DS' Pump to liner cycling chests, equipped with Miami Class "L" Agitators.

The stock is the recycled through a Miami No. 6 HYDRAFINER to develop the inherent strength of the papermaking fibers and is then passed on to the liner dump chest.

All chests are Miami Agi-Flo equipped, this assuring uniform suspension and circulation of the stock, and constant delivery of the stock to the jordan and machine head boxes.

The stock is transferred from the dump chests via Agi-Flo equipment to the jordan distributing head box. Here the stock is mixed and metered and passed on to the jordan section. This section consists of three Miami No. 3 and two Miami No. 2 jordans.

After jordaning, the stock is dropped to Agi-Flo equipped machine chests, from which point it is delivered to the machine head box and from there to the vats on the machine.

Two Miami Selectifier Screens serve the liner vat, eliminating the need of the usual machine screens or mix boxes.

All main stock flows are controlled by Shartle motorized Hope type rotary valves, while a good portion of the throttling is controlled by hand operated Shartle gate valves.

Most of these operations are remotely controlled from panel boards located at central points throughout the mill.

Cylinder Machine—"The General"

Vat Section. The five-cylinder Black-Clawson board machine at Fairfield is an outstanding example of the modern board machine, incorporating as it does many unique features that permit closer control and more efficient operation.

The five vats are of the uniflow type and all are all *Hydronamic* Inlet equipped for controlled even distribution of the stock across the mold. The molds are 60″ diameter, 140″ face, with 21″ diameter rubber covered couch rolls. The machine trims a sheet up to 135″ wide.

All vats are also equipped with "Liquitrol" automatic liquid level controls.

Press Section. The press sections are supported in a sturdy open-design superstructure directly over the vat section.

After the last vat, which is the liner vat, the formed sheet passes over the 30″ suction drum roll to the first primary which has 20″ top and bottom rubber covered rolls. The second primary has a 26″ bottom brass suction rolls with a 24″ rubber covered top roll, and the third has 24″ diameter rubber covered top and bottom rolls.

The main press has a 28″ rubber covered bottom suction roll and a 24″ Stonite top roll and is driven through a Black-Clawson spiral bevel gear drive.

All presses are provided with pneumatic loading controls at the main machine panel board.

Dryers. The four-sections of double-deck Black-Clawson seamless dryers comprises 66-48″ diameter paper dryers, 4-48″ diameter felt dryers, and 1-24″ diameter pony dryers. The first three sections are equipped with top felts, no bottom felt being required.

Each of the four sections is driven by a B-C spiral bevel gear drive equipped with air-operated "Airflex" clutches and is controlled from the front side of the machine.

The entire dryer section is covered by a J. O. Ross Engineering Company hood and exhaust system.

The dryers are equipped with Sheahan rope carriers. Lubrication is handled by a Bowser pressure oiling system, while a Midwest-Fulton system supplies the steam and removes the condensate.

Two seven-roll Black-Clawson calenders follow the dryers. The calenders are driven by Black-Clawson No. 2 spiral bevel gear drives, arranged with reversing mechanism. These drives are also "Airflex" operated from the front side of the machine. Electric roll lifts are also provided as an added safety feature.

A uniform speed "Pope" type reel driven by a Black-Clawson No. 0 spiral bevel gear drive winds the board into rolls approximately 42″ to 48″ diameter, for transfer to a Cameron rewinder for slitting and rewinding.

The finished rolls are then moved to storage in an adjoining building and from there go to the conversion plant.

Foreign Mills

Improving Equipment

A Black-Clawson check-up on shipments to mills in other lands during the past year or two discloses a surprising amount of activity on the part of overseas paper makers.

Not only are mills already in operation replacing old equipment with new and increasing their tonnages, but entirely new plants are being built.

The general nature of this development may be gathered from the following partial list of foreign shipments from the several Black-Clawson divisions at Hamilton, Middletown and Fulton:

South African Board Mills, South Africa; *complete mill equipment—filler system, liner systems, HYDRAFINERS, pump, agitators, etc.*

Cia Fabrica De Papel—*pumps, agitators, HYDRAFINERS, etc.*

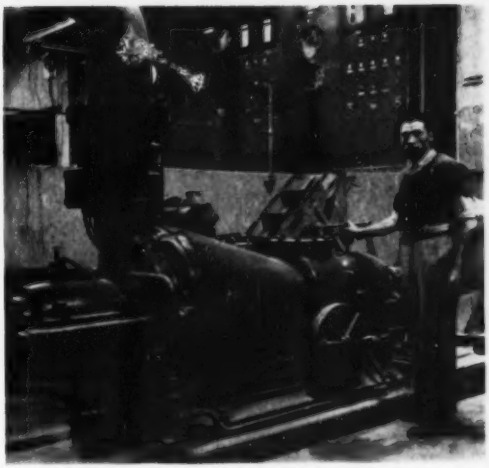
Industrias de Papel, Brazil—*Hydrapulper, pumps, agitators, HYDRAFINERS, jordans, valves, etc.*

Fabrica De Papel, Brazil—*Hydrapulpers, agitation equipment, etc.*

Brannstein Freres, France—*Miami jordans, agitators, pumps, etc.*

Papeterie De Virginal, France—*Hydrapulper.*

Cellulosa Argentina, Argentine—*complete top and bottom liner systems including Hydrapulpers, HYDRAFINERS, pumps, valves, agitation, etc.*



No. 4. Hydrafiner at Nancy mill of Societe De La Cartonneries, Paris.

Clondalkin Paper Mills, Ireland—*Preparatory Equipment.*

Prima Papelera, Cuba—*50-ton pulping and cleaning system including Hydrapulpers, grit remover, etc.*

La Rochette Mill, France—*B-C vats, calenders, reels, cutter and slitter, drives, etc., and stock preparatory equipment.*

Nancy Mill, France—*Hydrapulpers and accessories, stock cleaning system, pumps, agitators, etc.*

De Forenede Papirfabrikken, Denmark—*Hydrapulper, HYDRAFINER, valves, Hydracycle Tank equipment.*

Papierfabrik Utzenstrof, Switzerland — *Special broke Hydrapulper, etc.*

Fabrica Nacional de Papel, Uruguay — *Hydrapulper, valves, agitation equipment.*

Koninklyke Nederlandsche Papierfabrik, Holland — *Stock Preparatory equipment.*

Sutherland Paper's New B-C Board Machine

The Sutherland Paper Company, Kalamazoo, Michigan, started their new Shartle-Dilts liner and filler system and their new Black-Clawson cylinder machine on July 19 and in a matter of 90 minutes was producing salable paper.

The filler system features a 20′ continuous Hydrapulper with accessories, a 150 ton grit remover and the necessary pumps, agitators and piping.

The top and under liner system is made up of two 14′ batch Hydrapulpers, two No. 4 *Hydrafiners*, and the required agitating, pumping and piping.

The back liner system includes a 14′ batch Hydrapulper, four No. 3 Miami jordans and the necessary pumping and agitation means and piping.

The huge board machine, stretching approximately 900 feet from beater room to cutters, will soon be turning out 200 tons of paperboard a day at a speed of 500 feet per minute.

From "wet end" to the "finished end" of the machine it includes three main presses, two suction primaries, three plain primaries, eight flat screens, 118 cylinders in the dry unit, a Waldron microjet coater, three calenders, a rewinder and a slitter and duplex cutter.

Wet-end to finish, 600 feet: From the wet end where the pulp from the beater room enters the machine on the first lap of its trip, to the *finished end* where it emerges as high grade paperboard, the machine measures approximately 600 feet.

At the wet end the pulp entering the machine is 154 inches wide. At the finished end it emerges trimmed and processed in 136 inch wide pieces of cardboard.

Operating crew: An actual crew of 20 men will man the huge unit and beater room but additional electricians and auxiliary help will bring the crew to 30 men, or 90 workers figuring three shifts each 24 hours.

The productive value of the huge unit can be more clearly appreciated when its 200 tons a day are compared to the 385 tons a day total output of the Sutherland Company's other four board mills.

The new building which houses the machine is the equivalent of a two story structure and covers 190,000 square feet. It is large enough to house two paper machines.

Construction was begun July 16, 1947. The machine engineering, layout, and installing was handled jointly by A. L. Sherwood, vice president in charge of engineering, and Glen Sutton board mill superintendent. Operation of the mill will be in charge of Glen Sutton.

Twenty foot Hydrapulper of continuous type as on filler at Sutherland Paper Company, Kalamazoo.

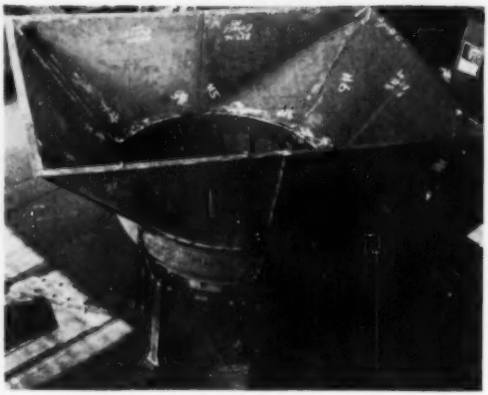
The completion of construction and the beginning of operations in the new board mill mark the end of the general expansion program instituted by the Sutherland Paper Company in 1946.

The new board mill, with its tremendous production, will enable the company to supply high grade folding box and food container stock to its cartoning plants at a rate in keeping with the capacity of the cartoning machinery.

Broke Hydrapulper to Switzerland

A special design Hydrapulper for broke handling was recently shipped to far-off Switzerland.

This unit emphasizes an unusually wide flaring top as shown in the accompanying photograph, taken while the unit was under construction.



Hydrapulper with flaring top for broke handling.

Recent B-C "Hydronamic" Installations

Recent installations of The Black-Clawson *Hydromatic* Inlets include the following, some on Fourdriniers, some on vats.

Alabama Pulp & Paper, Pensacola, Fla., one on Fourdrinier.

Angelus Paperbox, Los Angeles, Calif., two on liner vats.

Fairfield Paper and Container, Baltimore, Ohio, five on vats.

Container Corporation, Wabash Division, one on liner vat.

Mead Corporation, Nashville Division, one on new vat.

Ohio Boxboard, Rittman, Ohio, two on liner vats.

La Dochette Mill, Paris, France, two on top liner vats.

Container Corporation, Manayunk, Pa., one on liner vat.

Lee Paper Company, Vicksburg, Mich., two on Fourdriniers.

Fiberboard Products, Antroch, Calif., six on new cylinder machine.

Cellulose Argentina, Argentine, one on Fourdrinier.

Gibraltar Conveyor

An interesting Hydrapulper conveyor, built at Shartle, is that of the Gibraltar Corrugated Paper Company, North Bergen, N. J., here shown.

This feeding mechanism is expected to enable Gibraltar to operate their Hydrapulper at full capacity, as well as save substantially on labor.

Inclined Conveyor for Hydrapulper.

Other mills with traveling conveyors of this type now in service include Michigan Carton, Battle Creek, which has three, and Flintkote on the Pacific coast.

Recent Dryer Expansion Programs

To increase the capacity of the paper machine—by enlarging and improving the dryer section—B-C dryer equipment was recently installed by Container Corporation, Manayunk Division, No. 5 machine. Their 104 dryers remounted in vertical frames and felt rolls installed.

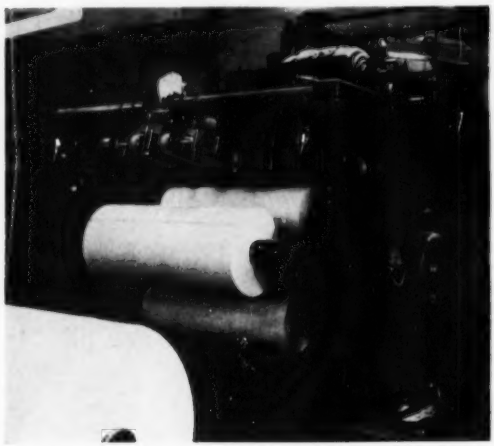
Also supplied for the entire dryer section were an oil circulating system and a Sheahan rope carrier.

On their No. 2 Manayunk machine the following: seamless dryers with Sheahan rope carrier. Framework for rearranging 92 dryers in vertical order. These frames also fitted with bronze bushed bearings, cast-iron cut dryer gears, packing boxes, pinions, drive-in frames, gear guards, circulating oiling system and 7 felt rolls with anti-friction bearings.

Also furnished additional dryers were the following: Consolidated Paper, Monroe, Michigan; Container Corporation, Wabash, Ind.; Wrenn Paper, Middletown, Ohio; Florida Pulp & Paper, Pensacola, Fla.; Fleming & Son, Dallas, Texas; Quaker Oats Co., Pekin, Ill.

Kohler Equipment at Appleton

A Kohler System combination unwinding and winding reel was recently installed on the No. 2 supercalender of the Appleton Coated Paper Company, Appleton, Wis., as shown in the accompanying photograph. The Kohler



Kohler System Equipment at Appleton Coated Paper Company.

System is now manufactured, engineered, and sold by Dilts Machine Works.

The reel gives constant tension and eliminates down time due to loading and unloading. This has brought about a substantial increase in production and a gratifying reduction in "snap-offs."

Referring to the photograph, the reel unwinds from the upper (rear) position, under uniform control of the Kohler pneumatic running belt tension. The calendered web is rewound on the bottom (rear) position, under control of the winder motor mounted above the machine, which was furnished by General Electric.

Unloading of calendered rolls and loading of uncalendered rolls is carried on in the front position by means of an electric hoist, these operations being performed while the stack is running. The roll cores are chucked in ball bearing spindles without the use of shafts.

While the stack is running, a splice is prepared on the fresh roll, and this roll is pasted to the expiring web at threading speed. A momentary stop is then made to strike over the winding web to the core which has just been stripped. The result is that down time at roll changes is a matter of seconds instead of minutes.

Other Recent Installations

A similar supercalender reel has just been ordered by Stecher-Traung Lithograph Corporation at Rochester, N. Y. Both Appleton and Stecher-Traung have been operating Kohler System equipment for unwinding and winding with high-speed roll change on coating machines for some time.

Kohler System installations have recently been completed at Specialty Papers Company, Dayton, Ohio; Watervliet Paper Company, Watervliet, Mich.; Standard Gravure Corporation, Louisville, Ky. (all repeat orders); also at Kalamazoo Paper Company, Kalamazoo, Mich., and Rochester Color Printing Company, Rochester, N. Y. The installation at Specialty Papers Company is on a new 84" high-speed Dilts Waxer.

Besides the foregoing, some other examples of typical Kohler System operations are the following:

FOR CLAY COATING at International Paper Company, Corinth, N. Y.; Provincial Paper Company, Ltd., Georgetown, Ont.; St. Regis Paper Company, Kalamazoo, Mich.; Lowe Paper Company, Ridgefield, N. J.

FOR PARCHMENTIZING at Marcalas Mfg. Company, East Paterson, N. J.

FOR SUPERCALENDERING at Kimberly-Clark Corporation, Kimberly and Niagara, Wis.; Castanea Paper Company, Lockhaven, Pa.; M. & O. Paper Company, International Falls, Minn.

FOR EMULSION COATING of film and lacquer coating of paper at Eastman Kodak Company, Rochester, N. Y.

FOR WAXING at H. P. Smith Paper Company, Chicago.

FOR SATURATING AND CREPING PAPER CURTAINS at Clopay Corporation, Cincinnati.

These installations suggest the versatility of Kohler Systems whether the requirement is unwinding, winding, flying pasting, or a combination of these operations. Complete information will be gladly furnished by Dilts Machine Works.

Paper Institute Now Has Special Hydrapulper

Recently furnished to the Institute of Paper Chemistry, Appleton, Wis., was a small three foot special laboratory Hydrapulper. This unit will be used for the testing of various types of furnishes on the many projects laid before the Institute for study.

The Greystone Drive

This drive is a combination differential gear and hydraulic unit. It is a completely packaged unit except for a power source. The power is put into one side of the differential, and the other side of the differential provides the drive to the center shaft of the winding unit either directly or indirectly.

The center of the differential unit comprising two bevel gears is housed in a ring gear which drives a pinion connected to the main hydraulic pump.

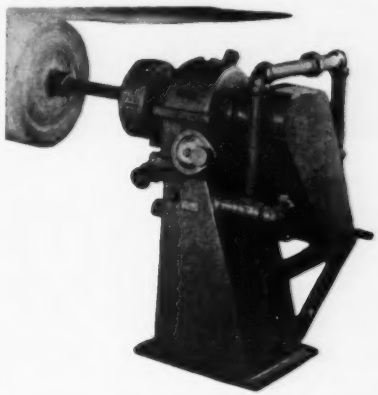
A secondary pump is driven from a gear on the output shaft to the winder. Both of these pumps pump from a common reservoir against a valve in their respective circuits.

The purpose of the main pump and its control valve is to determine the amount of tension to be maintained on the web and, once it is set, roll after roll can be run without any further adjustments.

The purpose of the secondary pump and its control valve is a "levelling" device for the unit which makes it possible to maintain absolute constant tension, a slight decrease in tension from the core to the full roll, or a single increase in tension from the core to the full roll.

The latter two conditions are in a straight line relationship and the amount of increase or decrease can be determined by the valve settings. This result is obtained through the fact that the secondary pump consumes a predetermined amount of horsepower at the beginning of the roll which is the high RPM condition, and consumes a negligible amount of power of the full roll condition where the RPM is the lowest.

Therefore, in effect, it is drawing power in the beginning and gradually forwarding the power into the roll shaft as the roll increases in diameter. The unit, therefore, has a great value in automatically maintaining a constant tension on any web. It is particularly adapt-



able to film, as it is possible to wind up a roll with very little tension, in fact, from a tree loop.

There are no dancer rolls, slip clutches or brakes required.

Frank W. Egan Company has an exclusive representation of the unit in the paper, film and plastics industries.

Molten Paraffin Systems

By

WINFIELD S. BONDY

Consulting Engineer, New York City

Paraffin coated wrappers and containers come in contact with food in today's packaging. Manufacturers of such waxed products are therefore responsible for the health of countless numbers of people. Great care must be exercised to maintain the highest standards in keeping the paraffin clean and odorless.

Some of the factors which must be taken into consideration when melting, storing and applying paraffin wax have been outlined below. The writer has spent considerable time developing and placing in operation such systems for the American Can Company, Lily-Tulip Cup Corporation and others.

Large quantities of wax are shipped by freight car in the form of solid molded slabs packed in burlap bags, cartons, or even unwrapped. This requires handling and trucking to and from the cars, and from storage areas to machines, exposing the wax to dirt, lint, bacteria and insects. It is not easy to stack slabs in storage, so that valuable warehouse or manufacturing space is required to store a minimum of wax for operations. The storage area must be reasonably cool or the slabs will congeal and must be broken apart, a costly procedure. Finally, when the slabs are melted at the machines, the dirt, lint and foreign impurities must be carefully removed before the wax can be applied to the paper. Because of these difficulties and also because of the reduction in the handling facilities required, some users have found it desirable and economical to install equipment to accommodate the storage of paraffin in liquid form.

One who has operated with slab wax only, has a treat in store for himself when he first uses liquid paraffin from a storage tank. The ease with which the heated wax can be pumped from storage directly into the applying machine at just the right temperature, either automatically or by the touch of a button, cannot be exaggerated. Where the user is sufficiently close to the refinery, a tank truck of 3000 gallons or more capacity can be employed to transport the heated liquid paraffin, direct from the refiner's storage tanks to the user, with very little drop in temperature. The wax, filtered at the refinery, and untouched by hand, can then be connected to unloading pumps and conveyed to storage tanks, to be relayed as required in the processes. Wax can be received and handled in tank car lots of 8,000 to 10,000 gallons when the refinery is too distant to permit truck shipments, or where the user desires to store a large reserve for operations. The car is filled by hose at the refinery in a manner similar to the truck. When it arrives at the user's plant, the coils in the car tank bottom are connected to the heating medium, preferably hot water, and the wax is liquefied. It is then pumped to storage tanks as mentioned above.

A tank car heating system and a group of storage tanks require piping and pumping equipment and a means of accurately controlling temperature. Unless the heating is carefully controlled, excessive temperatures may damage the paraffin. For example, wax can be held at 250°F. for a few hours only, at 200°F. for a few days and at 150°F. for three or four weeks. Below 150°F. it can be kept indefinitely without danger of oxidation or spoilage. Because of the ease with which its temperature can be controlled and its heat distributed, hot water has proven to be the most satisfactory means of maintaining temperatures, for melting, storing and conveying paraffin wax. Steam is used in some installations, but there is always the danger of locally overheating a film of paraffin, starting an oxidizing reaction, which could spread to the entire mass in the tank and spoil it.

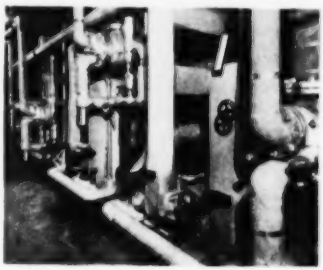
Battery of nine 10,000 gal. storage tanks at new Lily-Tulip Plant.

The size of storage tanks is generally based on the capacity of the tank car which is used to convey the paraffin to the plant. Multiples of this size are chosen to store the required quantity for operations and maintain an adequate reserve of about two weeks. Some plants have installed standard tank car tanks on saddles, either inside the building or outside, above or below ground, properly insulated and heated.

The amount of heat required is usually no greater than that which is already available to melt the paraffin in block form at the individual machines. The following will give some idea of the amount of steam required:

To melt a 10,000 gallon tank car lot of paraffin in one day's time, if the wax were received at zero degrees and heated to 150°F. for storage purposes, approximately 500 pounds of steam would be required per hour, or 12,000 pounds per day.

Under extreme conditions, it would require approximately 2,200 pounds of steam per day to maintain 10,000 gallons of wax at a maximum of 150 degrees F. in an insulated tank, the outside temperature being zero degrees.



Interior of Pump House.

Depending upon weather conditions, the steam consumption will of course vary from January to July, being about 51,000 pounds during the former and about 33,000 pounds during the latter, to maintain 10,000 gallons at 150 degrees F.

Due to the care taken at the refinery, in loading and unloading tank trucks and tank cars and in transferring wax from these conveyances to the storage tanks, there is little if any possibility of contamination. To remove any residual dirt which may lodge in a tank or pipe line, it is good practice to pump the paraffin through a filter before applying it to the product being manufactured. An inexpensive yarn type of filter has proven very satisfactory in many installations.

Water which may be in the wax at the time it is loaded for shipment will settle to the bottom of a tank car or a storage tank. Provision should be made to drain off this water from the lines before pumping to the machines.

Good housekeeping and careful control of temperatures, heating media and foreign matter, will pay dividends to an efficient organization. Machine baths, tanks and equipment, should be emptied and cleaned at regular intervals to prevent wax from being lodged at some point where it could be reheated over a long period and oxidized until it becomes rancid. Your product itself will improve because of this service. It is good policy to take samples of the wax before storing it. These samples should be checked for strength, uniformity and odor, to provide a further assurance of a uniform end product. The wax supplier is in a position to control and improve these factors at the refinery.

Modernization at Upson Company

By

A. P. NUTTER and J. R. RAWLINGS

Plant Engineer and Chief Operating Engineer, The Upson Co.

The current plant modernization program of The Upson Company, Lockport, N. Y., is divided into three parts. Two-thirds of this program, to bring the company's facilities for producing laminated wood-fibre wall and ceiling panels, and laminated fibre specialties, to top efficiency, have just been completed and the third and final phase of the program is now under way.

The entire program might properly be termed the "Upson Five-Year Plan" for it was initiated late in 1945 and it is expected that it will be completed in 1950.

The company's objective in undertaking Step No. 1 in the three-part program was to increase the panel capacity of the board mill by approximately 25%.

It was in 1945 that Zack C. Hinds, Buffalo, N. Y. consulting engineer, was retained to make a survey and work out the modernization program.

At the time of the survey, steam at 10 PSI was available for heating the heater water and for general building heating through the operation of a 300 KW Erie Iron Works engine driving a Crocker Wheeler 25-cycle generator. All steam was supplied from four 350 HP Wickes vertical boilers fired by Combustion Type E underfeed stokers. The boilers were operated at approximately 160 psig., D&S.

The board machine was equipped with a side ventilating hood. A vapor absorption system in a somewhat dilapidated condition supplied ventilating air to the dryer rolls. The machine ventilation was supplied through a Vento heater. Needless to say, sweating conditions were bad and production was limited.

The entire mill was arranged for 25-cycle operation with the majority of current being supplied from the local utility through three 333 KVA transformers.

Figure 1. Board machine, showing new machine hood and Machine room ventilating system.

Production Increase

The program of modernization in the mill was quite involved. The majority of the power used was generated through engines which had become obsolete. The 25-cycle frequency had many disadvantages. The old engines were not suited to modern steam pressures and temperatures so that any thought of including them as part of the modernization was definitely impossible.

Management's objective of increasing the board capacity of the mill by approximately 25% was accomplished through the installation of a new machine hood, vapor absorption system, machine room ventilating system and air and water and other equipment contributing to greater efficiency. This added production naturally imposed greater demands for exhaust steam as well as power.

Thus, Step No. 1 in the three-part program was completed.

New Boilers Installed

The second step in the modernization program included the installation of new 450-pound, 550-degree TT boilers, fired by dumping grate type spreader stokers. The boilers, stokers and furnaces were designed to economically burn coal available to the district at the lowest cost per million BTU's.

Each boiler is capable of producing 40,000 pounds of steam per hour continuously. Each unit is equipped with tubular type air heaters, forced and induced draft fans and fly ash precipitators. Fly ash is returned to the fur-

Figure 2. A. P. Nutter, plant engineer, is shown with the four exhaust fans used for expelling waste vapors from the newly-installed Ross economizer to the atmosphere.

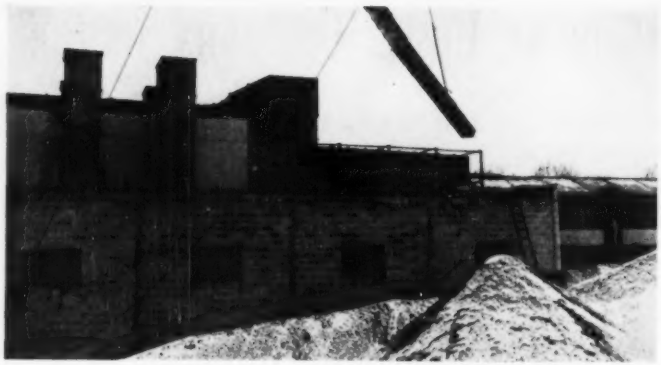


Figure 3. Ross economizer which utilizes waste hot vapor from the dryers for heating air and processing water.

nace from two passes of the boiler and the bottom of the air heater. Fly ash collected in the precipitator hopper is rejected through a vacuum system to the ash bunker.

This completed Step No. 2 of the three-part program and brings the modernization operations up to the present date.

Turbine Operation

The third and final part of the plant modernization program has been started and should be completed within the next ten months.

This step deals with power and includes a turbine generator designed for steam conditions of 400 pounds, 550 degrees F., TT, 30 psig. exhaust pressure.

All apparatus has been purchased and should be installed and operating early in 1950.

This turbine generator will replace the old Erie engine generator. The Brownell engine, formerly used to drive the board machine, will be replaced by a modern single motor drive arranged for 60-cycle operation.

Steam to drive the Hamilton engine will be obtained through a suitable pressure reducing and desuperheating station. The engine inlet pressure will be retained at 160 psig. but a small amount of superheat ranging from 10 to 20 degrees will be imposed upon it.

This third step in modernization also includes the changing of all of the drives in the board machine room and in the boiler plant to 60-cycle operation.

A 300 KW frequency changer set 25/60 cycle will provide a second source of either 25 or 60 cycle power, As an added increase in the source of power, the existing transformer bank has been air-cooled, thus increasing its capacity by approximately 25%.

Construction and Operation

Not only did this three-step modernization program require a sizeable sum of money but it also required careful planning and careful synchronization of construction operations to avoid interruptions to production. Dealing with the first step, involving the board machine hood, ventilating system, vapor absorption system and economizers, the addition to the board machine building was constructed and ready to receive apparatus as soon as it arrived. The building addition was so arranged along the back side of the board machine as to permit the installation of all fans on the ground floor. Fan equipment consists of four hood ventilating units, one machine room ventilating unit and one vapor absorption unit. By properly coordinating the work, it was possible to remove the old hood, the old vapor absorption system and the old machine room ventilating system and install all of the new equipment and have it ready to run in the normal summer vacation period of two weeks.

Now, after almost two years of continuous operation, it can definitely be stated that production on the board machine has been increased as expected by this addition, that the board machine room working conditions have been materially improved, that no sweating exists in even the coolest weather and that the economies expected from the installation of the economizer have been realized.

Figure 4. New 450-pound, 550 degree TT boilers, fired by dumping grate type spreader stokers. Each boiler is capable of producing 40,000 pounds of steam per hour continuously.

The second modernization step including the installation of new boilers and allied apparatus also required close planning and coordination. After several carefully made lay-outs, it was decided to remove two of the old boilers one at a time and erect the new boilers in the old boiler house building. Fortunately, the structure itself is modern and having formerly been occupied by vertical boilers, ample head room existed. Floor space, however, was at a premium and the boiler equipment had to be designed for the space available. Actually, the boilers as installed have adequate aisles between and around them. In order to avoid production interruption, three of the old boilers had to be maintained in service during the erection of the first new unit. As the old boilers were built in batteries of two, the battery wall was split and stayed, and the new boiler was erected with only 9 inches of clearance between the sidewall casing and the brickwork of the old center battery wall.

In making the changeover, insufficient floor area was available for fans, precipiators and air heaters. These were all arranged above the boilers at two elevations. The existing coal handling and bunker were not disturbed. A slight modification in the ash handling equipment was necessary. The rejection of fly ash from the precipitator hoppers is accomplished with a full automatic vacuum system. The main ash bunker has been partitioned off, thus separating this ash from the grate ash.

The first of the two new units has been in operation for slightly less than one year and the second of the two new units has been in operation approximately six months. The results have been very gratifying. Coal consumption has been reduced by approximately 30% and in addition, the delivered price of coal has been reduced through the ability of the equipment to burn cheaper grades, by approximately $1.30 per ton. While no official tests have been conducted on the boiler units as yet, careful operation and observation during four days showed the new boiler equipment to average under normal conditions and automatic control operation approximately 85% efficiency.

All of this saving cannot be attributed exclusively to the new boilers. New feedwater heating and treatment was installed together with a new condensate return system. The heating and the return of condensate should receive partial credit for the rather extraordinary savings effected by this second step.

The third modernization step is yet to be accomplished. The new paper machine drive will be installed as soon as the apparatus is available and will operate on 60-cycle power derived from the frequency changer set, until the turbine generator is running. The change-

over from 25-cycle to 60-cycle on the machine room and boiler room motorized equipment will require coordinated effort and careful planning. New metal clad switchgear will be installed adjacent to the old open panels. The present boiler operating pressure will be increased from 160 pounds to 425 pounds after the superheaters have been installed in each of the new units, one at a time. It is expected that this third step in modernization will provide for a badly-needed increase in power; that it will provide a second source of power as insurance against utility failure. The turbine also will provide means of eliminating oil now contaminating the entire exhaust system in the mill and last but not least, it should reduce power bills by some sixty percent and provide a source of 60-cycle power heretofore unavailable. Future progress and expansion in the mill along 60-cycle rather than along the definitely limited 25-cycle lines will then be possible.

Equipment and Material Suppliers

The American Blower Co. *Precipitators; Forced Draft Fans; Induced Draft Fans.*

Bailey Meter Co. *Combustion Control & Metering; Feedwater Regulators.*

The Beaumont Birch Co. *Vacuum Fly Ash System.*

Buffalo Forge Co. *Hood Ventilating Fans; Machine Room Ventilating Fan; Vapor Absorption System Fan.*

Buffalo Pump Co., Inc. *Condensate Return & Wash Water Pumps.*

The Cochrane Corp. *Pressure Filter & Zeolite Softeners; Deaerating Feed Water Heaters; Oil Separator.*

The Joseph Davis Co. *Plant Piping.*

The Detroit Stoker Co. *Dumping Grate Spreader Stoker.*

General Electric Co. *Auxiliary Motor Drives; Frequency Changer; Switchgear; Motor Control Center.*

Zack C. Hinds. *Consulting Engineer.*

Ingersoll-Rand Co. *Air Compressors; Boiler Feed Pumps.*

The Leslie Co. *Constant Pressure Reducing Valve Stations.*

J. O. Ross Engineering Co. *Board Machine Hood Vapor Absorption System; Board Machine Economizer.*

Wm. Summerhays Sons Corp. *Boiler Setting and Installation.*

The Swartwout Co. *Desuperheating & Pressure Reducing Station.*

Westinghouse Electric Corp. *Auxiliary Turbine Drives.*

Wickes Boiler Co. *Boiler & Superheater; Tubular Air Heater & Duct Work.*

Worthington Pump & Machinery Corp. *Turbine Generator.*

Powell River Development Program Completed

Nineteen hundred and forty-eight saw the completion of all major projects in Powell River Company's extension and development programme.

The following paragraphs outline the projects included in the Company's extension plans and which have been completed over the past two years.

Hydraulic Barker

In 1947, the large hydraulic barker, the first of its kind to be installed in Western Canada, came into operation early in the year. The old method of barking the logs, whereby they were brought into the sawmill, cut into cants, put through the edger, then through the slasher saws, on through the drum barkers, and any blocks remaining put on the hand barkers, was a long and tedious process. A complete deviation from this old method, the new barker strips the bark from the logs by high pressure water jet.

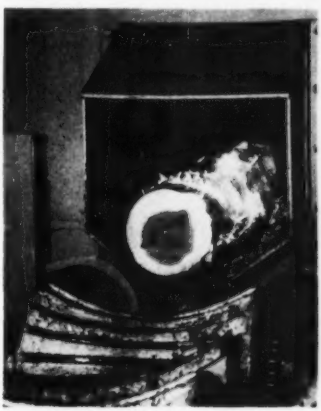


Figure 1. Small log emerges from Powell River Co. Ltd., small log barker.

Figure 2. Truck Logging on British Columbia Coast. Loading logs for transportation to tide water for booming.

Pressures of from 900 to 1200 lbs. per square inch are used, depending upon whether the logs are "easy barking" or "hard barking", which is governed by species, spruce being "easy" and hemlock and larch "hard". Actually the high pressures explode the bark by entering the bark cells. The logs emerge from the barker completely stripped and then pass on to the sawmill to be cut into blocks for pulping or go into the new whole log chipper. The Company estimates that savings from 10 percent to 12 percent in wood consumption are effected by the use of the new barker. This means a great deal in the conservation of timber resources.

Small Log Barker

Like the large barker, the small log barker which came into operation in July, 1947, also strips the bark from the logs by hydraulic pressure. An ingeniously contrived piece of machinery, this installation can handle logs as small as 4" in diameter and up to 15". The use of these smaller logs has been experimented with for some time but until recently the cost of handling and barking made it prohibitive. With the installation of the small log barker, much of this high grade pulpwood which had previously been left in the woods because it was not economical to bring it out, can now be used.

In the small log barking process the sawmill operation, essential for the large diameter logs, is eliminated. The logs are carried by special conveyor direct from the log pond to the barker, cut into eight foot lengths by slasher

Figure 3. Aerial view of Powell River Plant and Townsite.

saws and carried direct to the barker. All logs above twelve inches in diameter are, after barking, halved and quartered in the barker mill before being cut into pulp blocks, and from here they are carried direct to the groundwood machines.

With the installation more complete utilization of logging stands can be achieved; and considerable of the once useless timber lying in logged-over tracts, salvaged. This is another step in the Powell River Company's plans for conservation and complete utilization of its timber limits. However, only spruce and hemlock can be used in the manufacture of pulp and paper and there is a large amount of fir and cedar in this salvage material so that complete utilization can not be made by the pulp and paper industry alone.

Whole Log Chipper

Another important installation in the company's wood preparing division was the whole log chipper which commenced operation in July 1947. Previously blocks of 8" wood about 32" in length were fed into individual chipping machines. The new operation in one all-embracing swallow, consumes an entire 30" log 26' long and reduces it to small uniform chips in a matter of 30 seconds. There is no waste by way of butt ends and sawing which means further savings in wood over the year. Logs are sorted in the Barker Mill and pass by way of conveyors to the chipper down a deeply sloping chute where they come into contact with the chipper—an eleven foot disc on which knives are mounted and which revolves at 250 R.P.M.

Mechanical Block Loaders

Rounding out the changes in the preparation of their wood, the company installed mechanical block loaders which automatically load the pulp wood blocks onto portable platforms for delivery by Gerlinger Carriers direct to the grinding machines. This operation is much faster and more economical than the old system of conveyors and flumes.

Hydro Electric Development

The Scanlon Dam on Lois River was raised to final elevation of 522 feet during 1947 and a second 18,000 KVA generator was installed in the Lois River powerhouse at Stillwater, B.C.—fifteen miles south of Powell River. With this new installation the hydro electric capacity of the company's two power projects at Powell River and Lois River is now 95,000 H.P. This is sufficient to take care of requirements on completion of the development programme.

Pulp Mills

In the groundwood pulp mill a refining system has been completed which saves slivers and coarse particles previously rejected from the system. This equipment and other minor improvements have naturally increased production in the groundwood division.

Groundwood Mill Addition

In order to provide sufficient groundwood pulp for the operation of No. 8 Newsprint Machine, an addition was built to No. 3 Grinder Room. Two complete lines of electrically driven three-pocket grinders were added. The original three lines are driven by 3600 HP motors. The new lines are driven by 4500 HP motors and pulp production will be increased in proportion. The existing motors have reached the point where rewinding is necessary and as each machine is rewound it will be made suitable for the full capacity of 4500 HP. The grinders for the new lines are of the same type as those in use previously. Provision has been

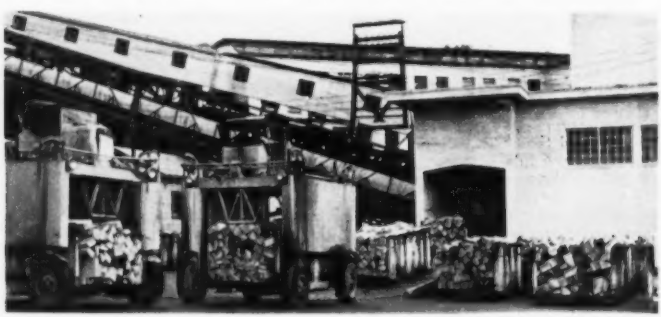


Figure 4. Huge carriers carry the clean, barked blocks to the Groundwood plant for pulping.

made in the present extensions for a sixth line of grinders. Building space has been provided for it and all the electric equipment is available.

As part of the groundwood mill extension, we have provided knotters and washers of the latest design to fully replace and augment existing equipment.

In the sulphite process an additional digester was installed, primarily to take care of increased requirements for the new newsprint machine.

High Yield Sulphite Process

Work on an entirely new process of producing sulphite pulp has been completed. It is designed to increase the newsgrade sulphite pulp yield.

It is hoped that this increase will be in excess of 30 percent, which will result in a reduction in manufacturing costs and further conserve timber resources to the extent of about 7,000,000 feet annually.

The new system under which the chips are cooked a shorter time will yield approximately 60 percent pulp, instead of 45 percent, as at present. The pulp is blown to blow pits in the normal manner and by a combination of screening and refining is brought to a suitable newsgrade pulp. The system is flexible; any degree of yield can be established up to at least the proposed 60 percent.

Also, the technical staffs at Powell River have been able to work out changes which have increased the output of sulphite pulp for sale by approximately ten tons per day.

Consolidated Mill Stores

In order to provide adequate material storage facilities a new Consolidated Mill Store was constructed. Prior to the present installation material storage areas in various parts of the plant occupied 125,000 square feet of floor space. With the new store less than half that space is needed. It is a 200 x 150 foot two-storied building of concrete construction completely fireproof. It is equipped with a 30-ton crane on overhead track and a movable five-ton crane. A five-ton capacity elevator connects both floors. A separate moth and vermin-proof room has been built to protect paper machine felts. Stocks are carried in six-foot steel racks enabling the storekeepers to work from the floor without ladders. Space is also provided for a Kardex control system and store accounting.

Figure 5. Powell River Company Ltd., Scanlon Dam Located at Stillwater on the Lois River 13 miles south of the plant.

Mill—General

Several other minor changes and installations have been made in various parts of the plant to increase efficiency and modernize all departments. Particular amongst these are changes made in the steam plant and improvements in the steam system which will reduce consumption of heat in various parts of the process producing appreciable savings in fuel oil consumption.

New Lodge

On November 1st, Powell River Company Limited officially opened Walnut Lodge. The building is modern in every respect and was constructed to house single men employed by the company. There are three floors comprising a total of 36 double and 41 single rooms providing accommodation for 113 employees. Each floor is provided with showers and the two top floors have large lounge rooms at each end of the hall. A special recreation room is also included. On the lower floor a laundry and drying rooms are located.

The company has no plans for any major construction during 1949. However, the research staff is constantly experimenting and conducting investigations to improve methods of manufacture and quality of product and, of course, a continuing programme of plant modernization will be carried on.

Number 8 Paper Machine

The new paper machine is installed in a building which was partially completed in 1930 when Paper Machine No. 7 was acquired. The machine is 226" wide and is one of the most up-to-date and potentially the fastest running in the world. It embodies all the latest advances in modern paper machine engineering skill and experience; and includes several unique and exclusive features. The machine started operation at a "warming up" speed of 1,200 f.p.m. and as the inevitable early installation "kinks" have been ironed out speed has been gradually increased until today it is operating in excess of 1,500 f.p.m. An eventual speed of 2,000 f.p.m. is considered within the capabilities of this machine. A more complete description of the construction and operation of this machine will be found in the article by F. N. Riley and H. B. Urquhart to be published Oct. 6.

Automatic process control equipment is used somewhat more extensively than heretofore. It is expected to make operation at high speeds easier and more effective.

Modifications of and extensions to

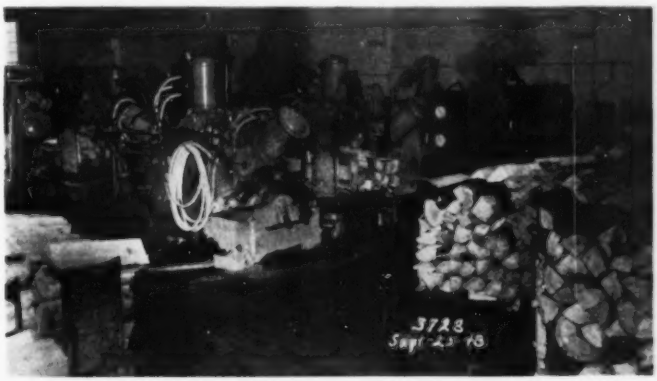


Figure 6. New grinders installed in the electrically driven grinder room at Powell River.

other parts of the mill, to take care of the increased demands upon them for operation of the new machine, kept pace with the paper machine project.

The installation of Number eight has added to Powell River's annual production, and will assist the Company in partially alleviating the still heavy demand for newsprint. Annual production will now be in excess of 275,000 tons, an output that puts Powell River in the top flight among the world's largest individual newsprint manufacturers.

The designed 2,000 ft. a minute speed of the new machine compares with 670 ft. of the four older machines, built in 1910 and 1912; with 1,000 ft. on five and six machines; and 1,400 ft. on Number seven.

In the past few years, in an attempt to meet, in part, the incessant demand for newsprint, these machines have far exceeded their designed capacities—and have produced an extra 100 tons daily. This is an achievement of which Powell River Company officials and employees are justly proud—and which has enabled them to give the maximum possible service to publishers.

Equipment and Material Suppliers

Bepco (Canada) Ltd. Paper Machine Drive.

B. C. Bridge & Dredging Co. Ltd. General Construction.

De Laval Co. Steam Turbine.

Dominion Engineering Works Ltd. Paper Machine.

Ross Engineering Co. of Canada Ltd. Vapour Removal System.

Vancouver Engineering Works Ltd. Stock Inlet.

Improvements at Finch, Pruyn & Company, Inc.

By

E. P. McGINN

Industrial Editor

Although the Finch, Pruyn mill at Glens Falls, N. Y., was originally built in 1904, constant replacement of obsolete and worn equipment has kept it completely modern.

The firm of Finch, Pruyn and Company was originally a partnership formed in 1865 by J. W. Finch, D. J. Finch and Samuel Pruyn. The company purchased the Glens Falls Company, manufacturers of lumber, black marble and lime, which had been organized about 1835. In 1885, D. J. Finch left the firm, his partners acquiring his interest and continuing to operate Finch, Pruyn and Company, the Glens Falls Company, the Glens Falls Company Mill and Associated Lime Companies.

In 1904 the companies were merged into a corporation known as Finch, Pruyn and Company, Inc. Its officers were George R. Finch, president; Maurice Hoopes, vice-president and secretary; and Howard H. Pruyn, treasurer.

Figure 1. Main building and part of pulp storage yard. Briner Economizer is shown on roof.

Figure 2. Part of woodyard showing stacked and piled pulpwood.

During the early days of the lumber business in upper New York State, the Adirondack mountains north and west of Glens Falls were the source of what then seemed an unlimited supply of white pine, hemlock and spruce. Hemlock especially was heavily cut and peeled during the summer and then during the late fall was cut into logs 13 feet four inches long. The end of each log was stamped with its owner's brand and all logs were floated down the Hudson River to the Big Boom at Big Bend, southwest of Glens Falls. This boom, which was built in 1850 by the Hudson River Boom Association, often held as much as 200,000,000 ft. of logs.

Together with the manufacture of its varied products, Finch, Pruyn and Company was once in the shipping business, operating canal boats as far south as New York. It was enabled to do this through the medium of the Feeder Canal.

The Feeder, about the year 1824,

was nothing but a big ditch, but by 1832, enlarged and equipped with locks, it became a navigable waterway. The original Feeder dam was about 770 feet long and 12 feet high.

In the palmy days of canaling, Finch, Pruyn and Company augmented its business by shipping lumber, lime and marble to New York on its fleet of 30 boats which returned with coal, grain, plaster and other supplies. In the later days they brought back sulphite pulp and took out newsprint. Today the boats are only memories.

Construction of the paper mill was started in 1904 and in the fall of 1905 two Pusey & Jones paper machines were in operation making 60 tons of newsprint and halftone book per day. A groundwood pulp mill with 16 grinders, producing 95 tons per day, was also put into operation about the same

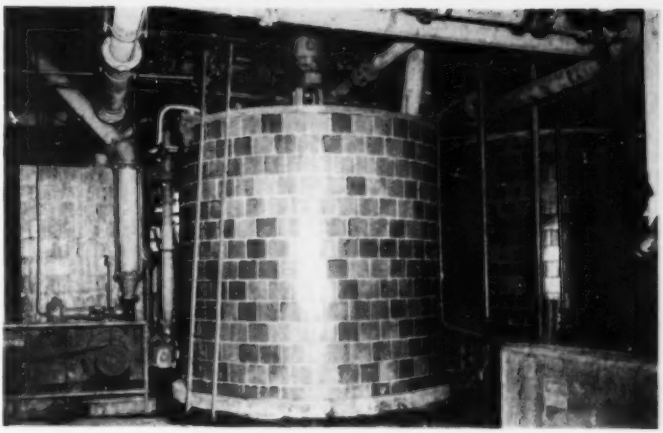


Figure 3. Bleach liquor dissolving and storage tanks. →

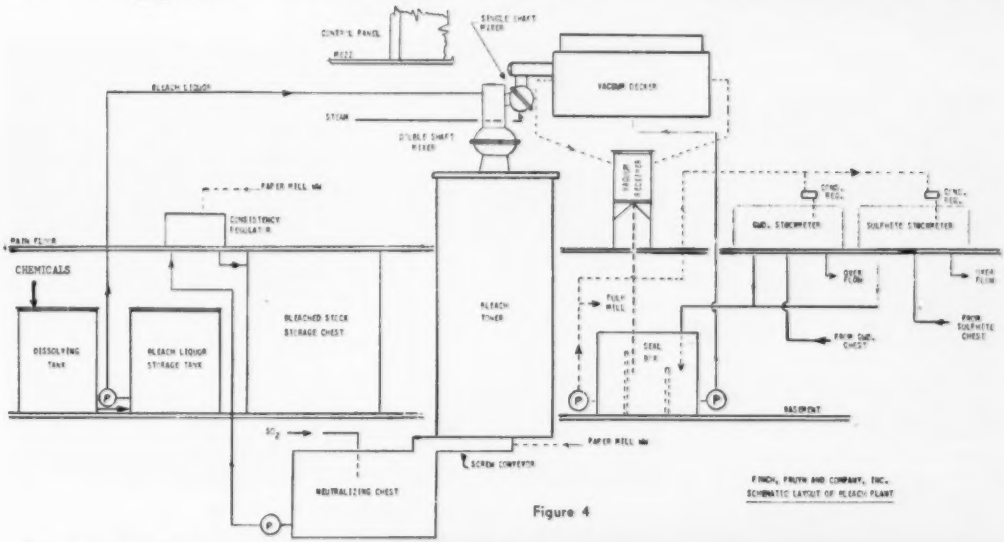
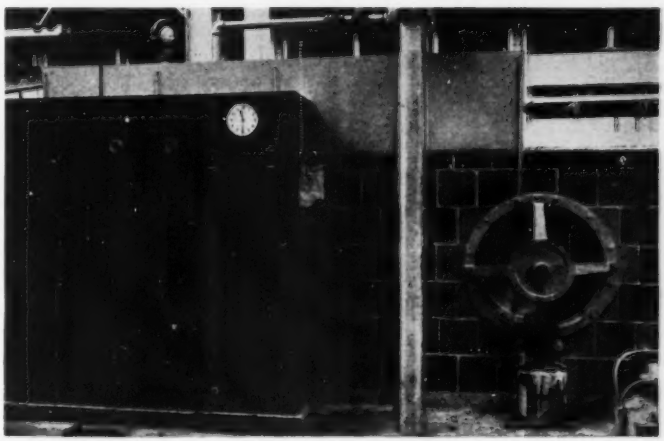


Figure 4

Figure 5. Bleach liquor make-up control panel and Stock measuring tank. →



time. A third Pusey & Jones paper machine was added in 1910, boosting the paper production to 105 tons per day. Meanwhile four more grinders had been added and the production of groundwood pulp increased to 130 tons per day.

During 1920-21 five more grinders were added bringing the total to 25 and production to 145 tons per day. The paper machines were also speeded up to increase paper production to about 125 tons per day.

In 1923 the paper machines were again speeded up to increase paper production to about 145 tons per day and four more grinders were added to make a total number of 29 and increase production of groundwood pulp to 200 tons per day.

The next major change in equipment came in 1934 when 23 of the 29 three

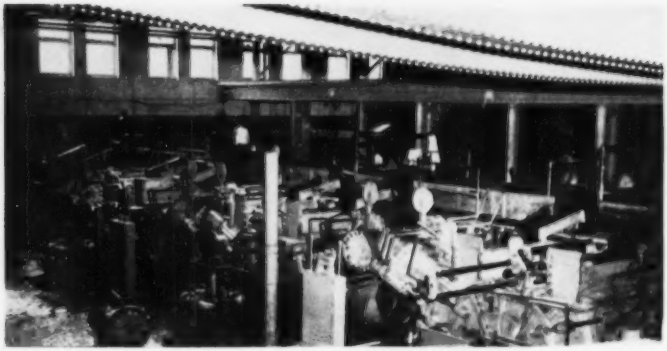


Figure 6. General view of Groundwood mill showing four of the five lines of Great Northern Grinders.

pocket grinders were removed and replaced by eight Great Northern grinders. Production remained at about 200 tons per day.

In 1938 the remaining six –three pocket grinders were replaced by two Great Northern units making a total of 10 grinders operating in pairs on five lines, each line being connected to a water-power turbine. Other turbines run generators, providing electric power for the mill, and one grinder line is motorized for use during low water periods.

During the intervening years the grades have gradually been changed from newsprint, hanging and halftone book to higher grades of groundwood printing and converting papers.

Within the past few months a new bleaching system, which allows considerable upgrading of the output, has been put into operation. This system has a capacity of 120 to 130 tons per day or about 85% of the total paper production of 150 tons per day.

The bleach plant, which was designed by the Finch Pryun Engineering Department, in collaboration with H. S. Ferguson, consulting engineer, and in cooperation with the Dupont Company, is the most modern type of Peroxide System.

Although specifically a groundwood bleaching process it can be used to bleach a mixture of 65-100% groundwood and unbleached sulphite in any proportion desired.

As shown in the flow sheet, *figure 4*, the bleaching process is continuous but the bleaching solution is made up in batch form in a cylindrical tile tank 10 feet in diameter by 11 feet high. The bleach liquor is then pumped to another cylindrical tile storage tank, 11 feet in diameter by 11¾ feet high. The maximum capacities of these tanks are: dissolving tank, 6400 gallons; storage tank, 8300 gallons.

To make a 5000 gallon batch of bleach liquor, the following chemicals are added in the order shown: 10 lbs. Epsom salts ($MgSO_4 \cdot 7\ H_2O$); 2000 lbs. Sodium Silicate (29% SiO_2, 8.9% Na_2O); 400 lbs. Solozone (96% Na_2O); 500 lbs. Hydrogen Peroxide (50% H_2O_2). When the above proportions of Sodium and Hydrogen Peroxides are used, no other acids or alkalis are necessary. Each 5000 gallon batch of bleach liquor will bleach about 20 tons of pulp.

From the storage tank the bleach liquor is pumped continuously to the double shaft mixer above the bleaching tower where it is completely mixed into the pulp from the vacuum thickener.

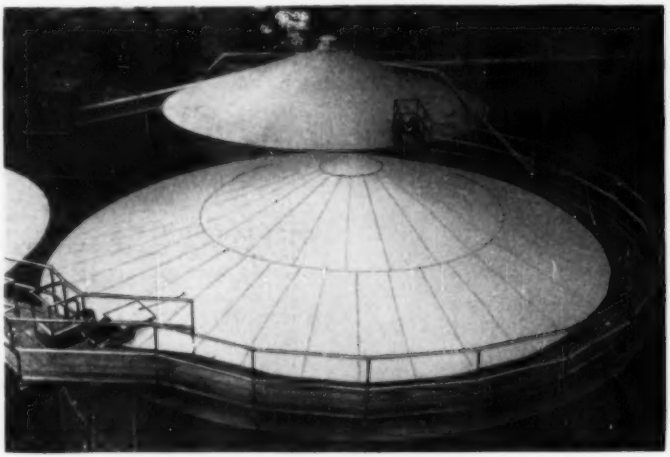


Figure 7. Groundwood storage tanks which hold about 200 tons of 4% stock.

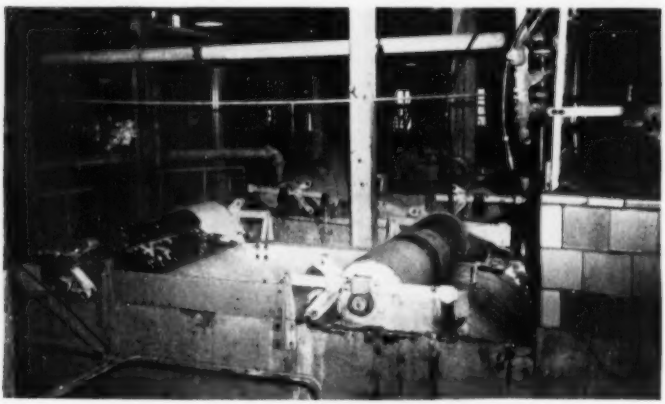


Figure 8. A battery of 12 deckers thickens the groundwood pulp.

Pulp Preparation—Groundwood

From the 10 grinders, groundwood pulp is passed through three Jonsson Knotters and then through five Impco Centrifugal primary screens. Rejects from the primary screens are rescreened in two Impco Centrifugal Tailing screens. Accepted stock from the primary screens goes to a battery of 12 deckers where it is thickened to 4%. Excess over mill requirements is sent to storage in 3 huge cylindrical outdoor steel tanks each 50 feet diameter and 35 feet high. About 200 tons of 4% groundwood may be stored in these two tanks, which are shown in *figure 1*.

As required the 4% groundwood is pumped from storage to the groundwood chest in the basement of the stock preparation room. From here the pulp is either put through the consistency regulator to the blending chests

or to the stockmeter at the bl. groundwood plant and mixed with the unbleached sulphite pulp.

Pulp Preparation—Unbleached Sulfite

Since no chemical pulp is manufactured in this mill, all of the Sulphite arrives in bales, which are defibered in a 14 foot Hydrapulper. This unit, which was only recently installed, is equipped with an electric hoist and roll conveyor to facilitate handling of the bales. From the Hydrapulper the defibered stock is pumped continuously through three Morden Stockmakers, arranged in series. Each Stockmaker is equipped with a 150 h.p. motor operating at 900 r.p.m. The refined stock drops into the cycling chest, so-called because the system was originally designed to recirculate the stock back through the refiners. However, it was found that a single pass gives sufficient treatment and produces more uniform results. Refined stock from the cycling chest is pumped either to the blending

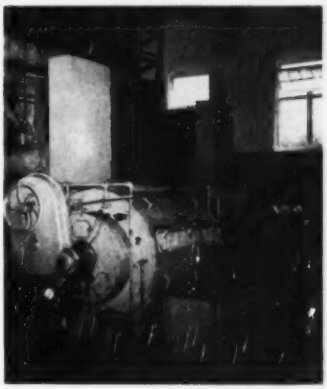


Figure 10. Impco tailing screens. Five primary screens are on platform above.

chests or through the Sulphite stockmeter which regulates the consistency and rate of flow before it is mixed with the groundwood in the bl. groundwood system.

The controlled mixture of groundwood and unbleached sulphite pulp is pumped to the Impco vacuum decker located at the top of the bleach plant. The decker is 16 feet long by 8 feet diameter. The pulp mixture which has now been thickened to 12-13% consistency, passes through a single shaft mixer where steam is added to raise the temperature to about 120°F. The stock then drops into a double shaft mixer where the bleach liquor is added continuously at a controlled rate of flow.

The pulp and bleach liquor which have been intimately mixed, drop into the bleaching tower. This is a cylindrical concrete tank 12 feet diameter and 27 feet high. The walls consist of 9 inches of concrete with 2 inches of tile on the inside.

Bleached stock is carried from the bottom of the tower by a screw conveyor to a neutralizing chest where a dilute solution of Sulphurous acid is added to neutralize any residual peroxide and bring the pH below 7.0. The stock is also diluted to pumping consistency and then pumped through a consistency regulator where it is adjusted to 4% before flowing into the bleach stock storage chest.

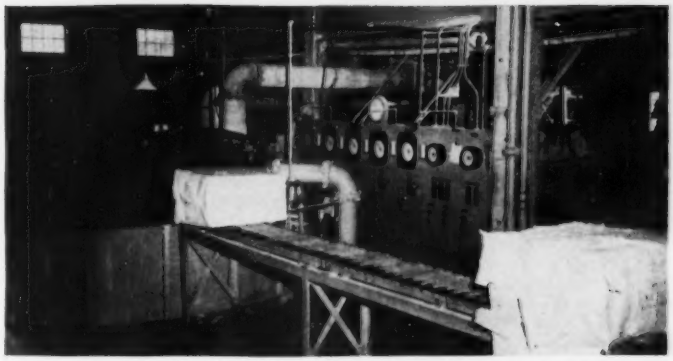


Figure 9. Fourteen-foot Hydrapulper with bale conveyor and control panel.

Each of the three paper machines is equipped with a tile mixing or blending tank 10½ feet diameter and 16 feet high. These tanks, which replace all beaters in the mill, are equipped with full length vertical agitators to provide thorough mixing of colors, size, alum, etc. From each mixing tank the stock is dropped into the machine chest and then on machines 2 and 3 it is pumped through Jones high speed refiners before going to the paper machine. The Jones refiners are equipped with 75 h.p. motors operating at 1200 r.p.m. Number one paper machine is not, at present, equipped with any refining equipment.

A new Pusey & Jones Slice and a Sandy Hill Head box were recently added to number three machine to improve formation and allow greater speed.

Rosin Size

Rosin size at 70% solids is shipped to the plant in tank cars from which it is transferred to two 6000 gallon thick size storage tanks. A Hercules automatic emulsifying system dilutes the

Figure 11. Interior of mixing tanks showing specially designed agitator.

size to 8-10% solids as needed. The dilute size emulsion is stored in an 8000

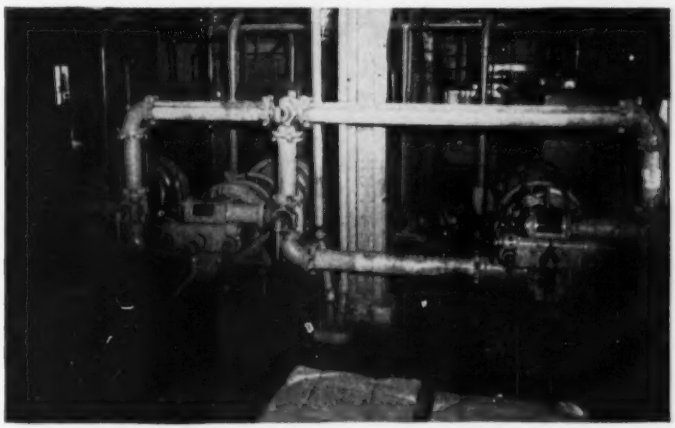


Figure 12. Three Morden stockmakers connected in series provide treatment of Sulphite pulp.

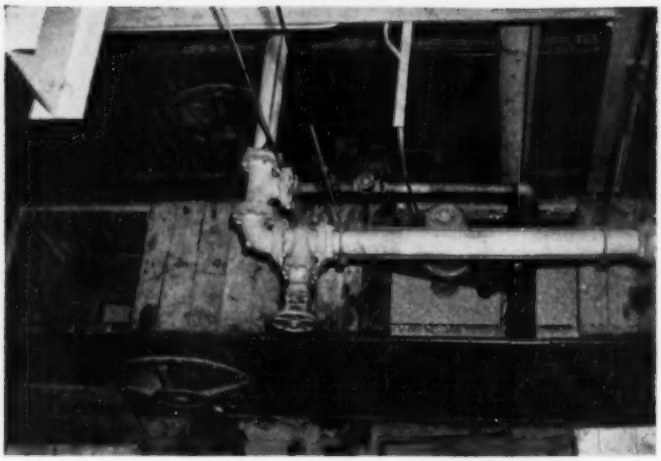


Figure 13. Stock regulator and measuring unit for pulp going to bleaching system.

gallon storage tank from which it is drawn through a strainer and a meter which measures the required amount to be added to the mixing tanks. A single strainer and meter serves all tanks.

Alum

Granular alum is stored in a cylindrical tank holding six tons. It is loaded into the top of this tank and fed automatically from the bottom by a dry feeder. From this feeder the alum drops to a stainless steel dissolving tank where it is automatically dissolved at a rate of 1½ lbs. per gallon. A stainless steel pump and Duriron piping carry the alum solution to the mixing tanks where it is metered into the stock.

Clay System

A considerable amount of filler clay is used in most of the grades made in this mill. Consequently an efficient clay handling system is decidedly advantageous. The Fuller airveyor system recently installed here is most modern. Pneumatic conveyors carry the clay from freight cars to a pair of storage silos 20 feet diameter by 40 feet high. For use, it is conveyed from the bottom of the silos to an automatic weighing system above the stock preparation room. This weighing system, built by Toledo Scale Company, weighs the correct amount to be mixed with a controlled flow of water to produce a slurry containing 1½ lbs. per gallon. This is screened in a Hummer vibrator screen before flowing to a storage tank from which it is drawn to supply the paper machines. The slurry for each machine is measured by a Rotameter and added at the fan pump suction in the wire pit. A float control in the slurry storage tank starts and stops the conveying and weighing equipment, thus making the system automatic from the storage silos to the paper machines.

Ross Air Systems and Briner Economizers

Numbers 2 and 3 paper machines are equipped with economizers but the equipment on number three is of special interest because it is the newest and most modern. This installation represents one of the newest developments in the efficient use of air for the production of paper and is probably the first system of this type in the industry to use aluminum construction. This light weight construction, by preventing excess stress on the existing roof supports, not only eliminates the need for major roof alterations but also conserves valuable working space within the mill due to the fact that most of the equipment has been installed on the roof of the main building. The use of aluminum practically eliminates corrosion and reduces maintenance costs to a negligible figure.

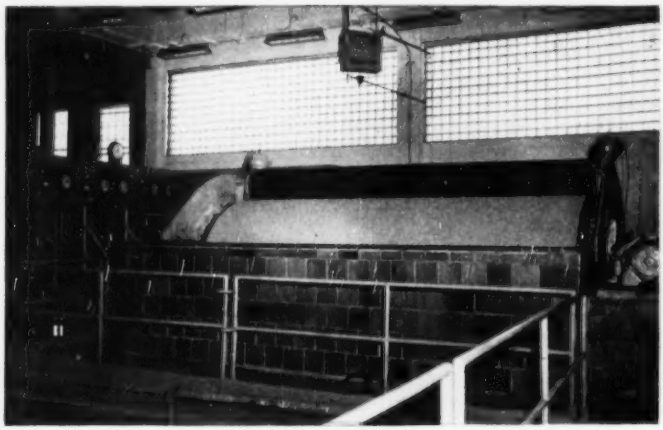


Figure 14. Impco Decker 16 feet long by eight feet diameter thickens stock for bleaching.

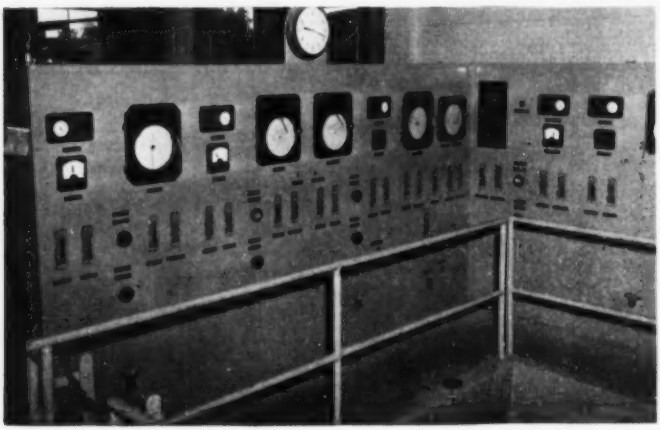


Figure 15. Most of the equipment in the bleach plant is operated from this control panel.

The installation includes new Ross Hoods of the latest type panel construction on all three paper machines as well as heating and ventilating for the entire machine room, and one of the machines is equipped with a Ross Bottom Felt Supply System. The heated air is

distributed through the machine room to keep the roof dry and to dry and condition the bottom dryer felts on the paper machines.

One of the most important elements of this installation is the aluminum Ross Briner Economizer which utilizes the waste heated vapor rising from one of the paper machines to provide heat for two purposes; first, to heat the large quantity of air required in both the Ross Ventilating and Drying Systems, and, secondly, to heat the enormous quantities of fresh water required by the mill. This Ross Briner Economizer method of utilizing hot exhaust vapors to heat incoming fresh air and water results in substantial savings of steam as well as in the savings that result from increased drying capacity, reduced maintenance costs and improved operating conditions.

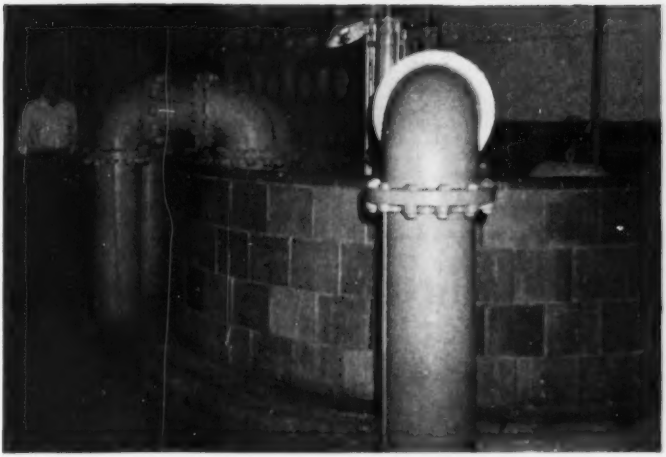


Figure 16. R. D. Moyninhan, Superintendent of bleaching and stock preparation is shown near control panel of the three stock mixing tanks, one of which is shown in right foreground.

Liebeck Disintegrator

Number two paper machine has recently been equipped with a Liebeck Disintegrator to take care of machine broke. The unit is located in the basement below the space between dryers and calender stack. A large floor opening at this point allows the broke to be pushed down as fast as it may accumulate, even during a break.

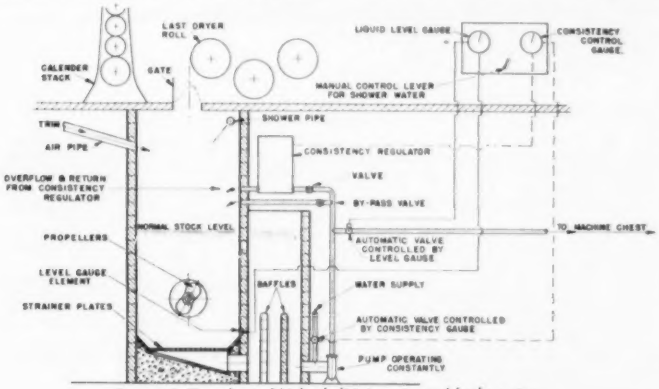


Figure 17. Flow chart of Liebeck disintegrator and broke system.

The Liebeck tank is made slightly longer than the width of the paper sheet. The tank is located directly beneath the last dryer of the paper machine, as indicated. The sheet of paper coming from the last dryer feeds down through a slot in the floor directly into the Liebeck tank. The gate shown on the drawing is closed except when there is a break on the paper machine, at which time it is manually opened, and the manual shower water level is turned to open position. This shower consists of a 4" pipe, extending the entire length of the tank, in which are fairly close-spaced, large-sized holes to throw a heavy sheet of white water against the sheet as it drops into the tank. The gate is so constructed that broke from the side floor and from the calender stack can be thrown down through the slot in the floor through wooden slats, of which the gate is built. Trim from the rewinder enters the Liebeck tank through an air pipe, as shown.

The pump, as indicated, runs constantly, taking an ample flow, approximately 100 gallons a minute, through the consistency regulator. Both the overflow and stock going through the regulator return to the Liebeck tank. The bypass line shown in the drawing is rarely used and is simply arranged to be used in case of emergency. The automatic valve permitting stock to flow to the machine chest is controlled by the liquid level mechanism. As long as the level is at a pre-determined, fixed point in the Liebeck tank, this valve remains closed, but as soon as this level increases slightly, the valve opens, permitting stock to flow to the storage chest. When the level again decreases to the normal point, this valve closes.

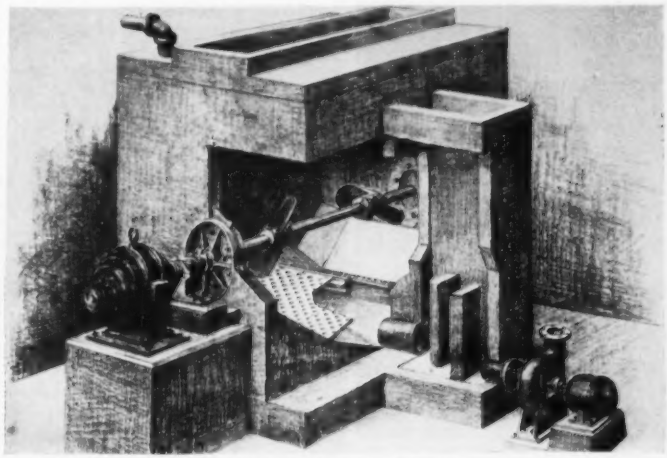


Figure 18. Cut-away view of Liebeck disintegrator designed for continuous operation.

The consistency regulator fixes stock consistency by adding water just ahead of the circulating pump; thereby furnishing regulated stock to the storage chest and at the same time, regulating the main mass within the tank.

This two-propeller installation takes approximately 60 hp. and handles easily all of the broke from this paper machine, which is just about 9 ft. wide. There is no trouble experienced from stock hanging up on the perforated grates so long as the consistency is controlled and the level within the tank is at the normal position. The degree of disintegration is satisfactory, as the stock returning to the system enters the machine chest and is again refined with the new material in normal manner through a final Jordan. It has been stated by the mill operators that if another installation were made of this type, there are no details that they would consider changing.

The Executives of Finch Pruyn who have shared in the job of keeping this mill at top efficiency are: Lyman Beeman, President; H. F. Bullard, Vice-President in charge of manufacturing; R. I. Wynne-Roberts, Chief Engineer; A. L. Mosher, Gen. Mill Superintendent; John Falvey, Groundwood Superintendent; R. D. Moynihan, Superintendent of Bleaching and Stock Preparation and K. C. Kroetz, Assistant Plant Engineer.

Inventive Genius Lowers Belt Cost of Cone Pulley

By

R. E. COOK

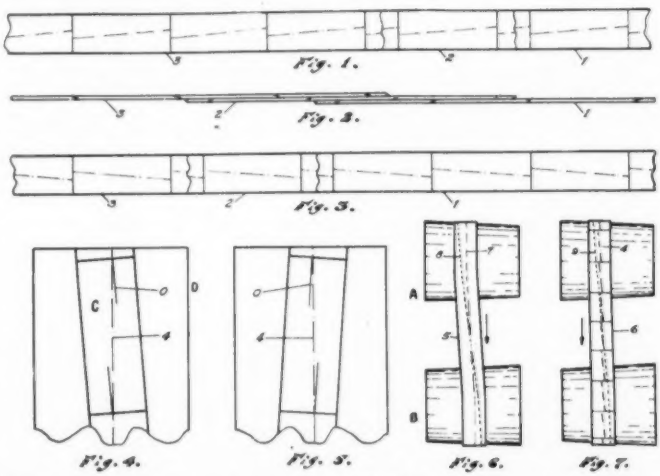
Sales Engineer, Alexander Brothers, Philadelphia, Pa.

Tapered pulley operation has always been a tough assignment for any transmission belt of regular construction. And in these days when modern paper mills have stepped up cone belt speeds to 7000 feet-per-minute and over, even the finest belt of usual construction is totally inadequate to carry the load with either efficiency or economy.

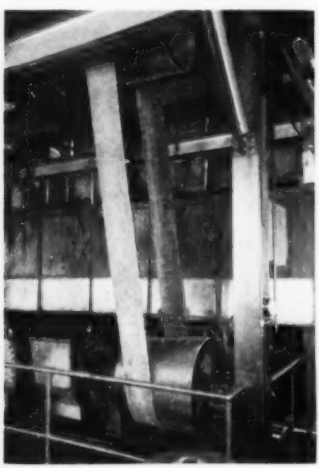
It remained for a leather belt manufacturer to meet and overcome the peculiar difficulties of taper cone pulley operation through a very special and exclusive type of belt construction.

Principles of Invention

Perhaps the clearest, most concise statement that could be made about this special belt for taper cone pulleys is incorporated in the introductory words of the inventor's patent claims where he says, "My invention relates to the construction of leather belts for transmitting power from one cone pulley to another; and its object is to provide a belt which shall have maximum capacity and length of operating life."



Reproduction of original patent drawing for leather belt especially constructed for cone pulley operation.



A 14" CONE-MASTER 3-ply leather belt in operation at a well-known eastern paper mill.

The patent No. 2,200,266 was granted late in 1940, and production was started within the following year. In subsequent years since that time, an immense amount of research work was done, testing cone belts at all speeds; and six years of actual operation in some of America's leading paper mills proved the complete fulfillment of each of the inventor's stated objects. This special, patented construction has created a leather belt that does transmit the maximum of power and gives longer life by far than was ever expected from any belt that operates over taper cone pulleys.

The accompanying reproduction of the original patent drawings quite graphically illustrates this special leather belt construction.

Only "Backbone" of Hides Used

For such an arduous task, it is quite natural that only the "backbone of the hide" is used; that central portion of the hide, which in the animal extends along the backbone and is always freer from stretch.

Figures 4 and *5* show the method of cutting hides used to obtain the necessary sections which comprise the various plies in this special cone belt construction. The use of taper cone pulleys implies the necessity for variations of speed on parallel shafts while the speed of the prime mover remains constant. Not even the finest grades of leather or fabricated belts constructed for "straight-line" drives can do this job as well. In drives embodying taper cone pulleys with the larger end of one pulley opposite the smaller end of the other, the stress or pull line of the belt is always from high side to high side, or diagonally across the face of the belt. This is indicated in *Figure 6* —where the belt (5) extends around the driving pulley (A) and the driven pulley (B), the line of stress (8) extending from one edge of the belt to

the other, the line (7) along the middle of the belt serving to indicate the angle of the stress line.

Construction Provides Strength Where Needed

The present invention provides for a construction in which the lines of the backbone of the hides will be along or parallel to line (8) or the greatest stress. An example: In *Figure 4* the section (C) is cut from the hide (D) in such a manner as to bring the middle line of the backbone to the desired angle (0) in relation to the edges of the section.

In *Figures 1, 2* and *3* are shown sections of the several plies, expertly cut so that the backbone lines (4) are at the exact angle in each of the three plies. In *Figure 7*, the line (9) of stress is parallel to the lines (4) of the backbone portions of the belt sections. A belt so constructed operating on taper cone pulleys will transmit more power under given tension, will run straighter, eliminate the "hunting" or to-and-from movement of the belt on the pulleys and will resist edge wear against a belt shifter. Such a belt will not curl at the edges, its inner plies have much longer operating life, and stretch is reduced to the minimum. This special cone pulley belt is composed of sections of leather, each section cut from the central or backbone of the hide so that the centers of each strip are at a predetermined angle in accordance with the taper of the cone pulley of the drive. The plies of leather cemented together are so arranged that the strongest firmest portions of each section follow the line of greatest stress. This construction spreads the pulling point somewhat across the width of the belt, providing a more constant and regular speed, more power for a given width of belt and far less tension, all of which save stoppages for take-ups.

In a high grade leather belt made to transmit power from one straight pulley to another, the backbone of the hides making up the various plies of the belt are usually located along the line (7) of *Figure 6*, but it has been proved beyond dispute that this does not provide the best construction for belts to be used on taper cone pulley drives.

To sum up—this belt is purposely and expertly constructed to give the greatest resistance in the line of the greatest stress. Research has provided a set of tables of belt speeds and belt widths so that less stretch, uniform power and a definitely lower belt cost per ton of paper produced is the result of its operation.

Mando's Expansion and Modernization Program Nears Completion

The past year and the early part of 1949 saw the completion of many projects in the Minnesota and Ontario Paper Company's expansion and modernization program started in 1945.

Details of the expansion and modernization at International Falls, Minnesota, are as follows:

Bleach Plant:—A new bleach plant with a daily rated capacity of 100 tons of bleached pulp is now in operation. Centrally located in the mill, the bleaching facilities are housed in three buildings. One of these buildings is used for caustic and brown stock storage and another for bleach liquor preparation. These both supplement the main four-story bleachery which measures 68 feet by 119 feet.

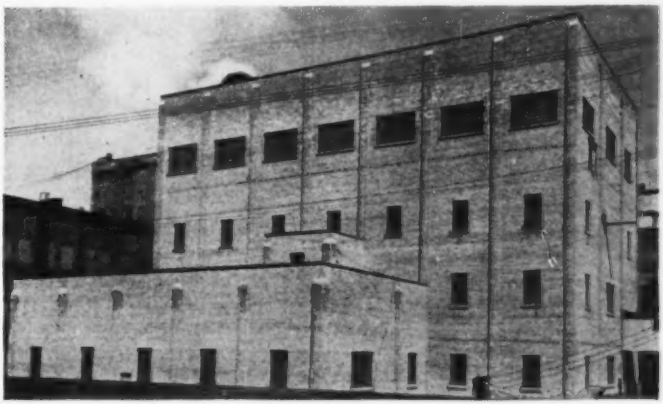
The operating center of the bleachery is on the top floor where the washers and push button control stations are located. Pumps and dump chests have been installed on the ground floor, seal boxes for the vacuum pulp washers on the second, with power units and sub-stations, complete with metal-clad control panels, housed on the third floor.

Especially designed doors effectively isolate the fourth floor and keep it under constant air pressure. This provides protection for employees and for the electrical equipment which is easily damaged by the possible seepage of chlorine gas. A complete system of heating and ventilating is provided to heat and filter the outside air before it is admitted to the building and circulated.

Donald D. Davis, President M & O Paper Co.

Six stages of treatment have been provided to produce bleached pulps for quality paper products. Although present bleaching operations center chiefly on kraft pulp, the new plant is equipped to process both sulphite and kraft pulp at a rate of 100 tons per day for each variety.

Filtration Plant—Start of the bleachery operations also means the initiation of the first large scale use of the new Mando filtration plant which was fin-



Four-story bleach plant has latest in equipment for bleaching of kraft and sulphite stocks.

Press section of Mando's number three Insulite machine.

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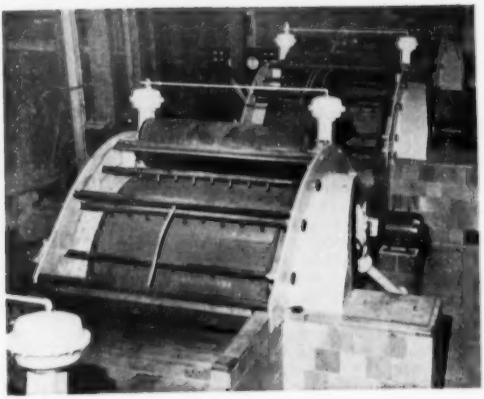

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Stock is washed after each bleaching stage in a series of vacuum washers located on the top floor of the main bleach plant.

ished late in 1948. Built for a capacity of 15,000,000 gallons per day, the plant can be expanded to process up to 30,000,000 gallons per day. The plant utilizes the Permutit Spaulding precipitation and coagulation system, followed by sand filters. In addition, the water is given chemical treatment for bacteria control and removal of objectionable organic coloring matter. Mando is also furnishing filtered water to the city of International Falls from this plant.

the units of the new "sectionalized" system.

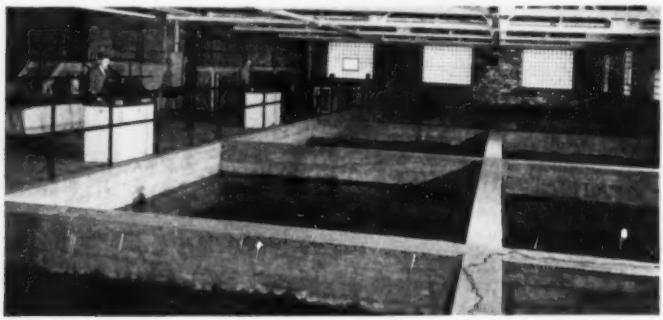
The remodeling project included the installation of four new Bird screens, replacing three of smaller size, and the replacement of the head box with one of larger capacity, and improved design. Another feature of the rebuilt machine is a new slice, permitting more uniform stock flow control.

The Fourdrinier section has also been rebuilt and materially improved to provide better sheet formation and to permit increased machine speeds. Wire length has been increased from 70 feet to 100 feet and eight new suction boxes have been installed.

A new 36-inch diameter suction couch roll replaces one of smaller dimensions. A second suction press and a smoothing press were also added in the rebuilding process.

Increased dryer capacity has been provided with the installation of a section of seven dryers. Also, a size press has been added to the machine to permit the manufacture of offset and other surface sized fine papers.

On the dry end of the machine, the calendar stack frames were machined and re-aligned, and the latest design of Pope type reel has been installed.

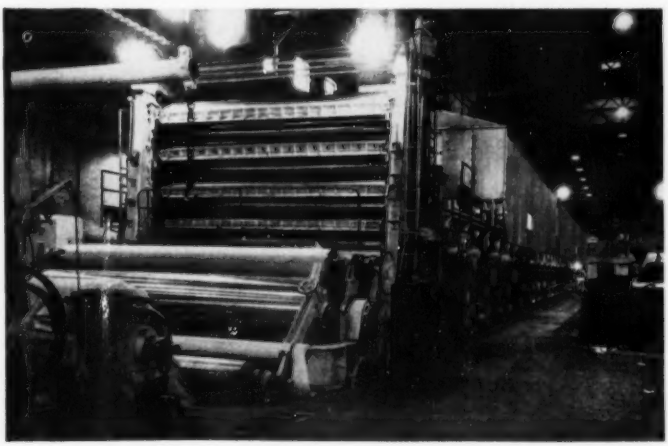


One of the final steps in removing impurities is the passage of the water through filter beds.

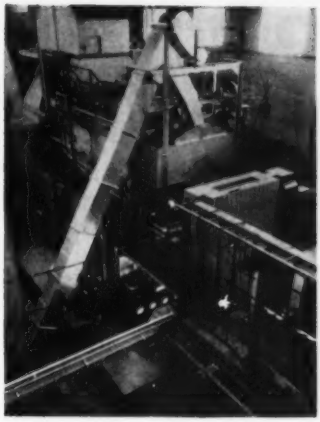
No. 3 Insulite Machine — Efficiency of the No. 3 Insulite machine at the Falls has been stepped up appreciably

No. 4 Paper Machine Rebuilt — To produce the higher quality papers made possible by the new bleaching and filtration facilities, the company completely rebuilt and modernized No. 4 paper machine. Both bleached and unbleached kraft and sulphite grades can be produced on the newly designed machine.

Featuring the latest type sectional electric drive, the revamped paper machine is capable of producing in excess of 120 tons per day. Its speed ranges from 200 to 1200 feet per minute. Prior to modernization, this machine, in operation since 1910, was driven by a 400 horse-power Corliss steam engine through an English rope system drive. The new drive consists of a motor generator set and 11 variable speed DC electric motors. Electronic controls regulate and coordinate



Mando's number four machine originally installed in 1910, has been rebuilt and modernized to produce a variety of paper products. Powered by a new electric sectional drive, production will now exceed 120 tons per day.



Birdseye view of woodroom refuse boiler.

measuring 102 feet long, 96 feet wide. A major part of the building is devoted to a giant steam generator and two large tanks in which the processed material is stored while awaiting delivery to the burning unit.

Waste from the woodroom is sluiced to the disposal plant through a 36-inch pipeline. Included with the incoming stream, which is mostly water, is all the waste, consisting mainly of bark and sawdust.

Several screening and pressing machines are installed to convert the wringing-wet waste matter into semi-dry fuel for the big boiler. After the moisture content is reduced to about 55 per cent, it is conveyed to two storage tanks each with a capacity of 120 tons of the processed fuel. This amount is enough to feed the steam boiler a full day. These storage facilities permit the steam generator to function on a 24-hour basis, even though the woodroom is not in operation all the time.

As required, the refuse material is conveyed to the fuel feeders located on the front wall of the steam generator. These feeders inject the fuel evenly under air pressure to the combustion chamber. The boiler burns the half-dry fuel in suspension. Particles which fail to burn instantaneously, drop to the floor of the furnace and burn there.

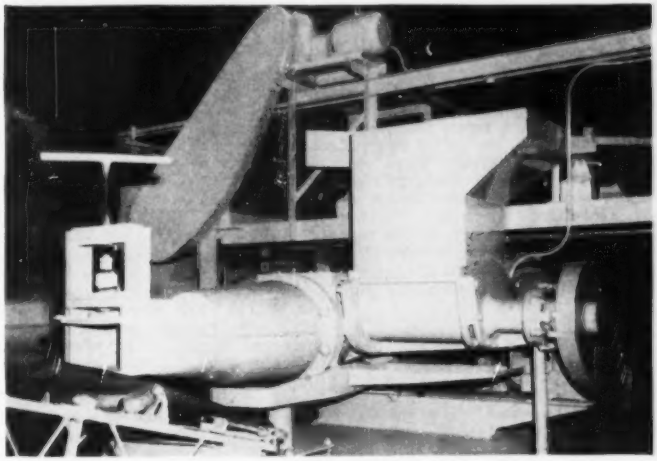
Designed to produce 50,000 lbs. of steam per hour, the refuse-burning boiler will deliver process steam to the mill system at 450 lbs. pressure. Fuel oil is used to start the furnace and keep it going at times when the combustibility of the wood waste is reduced by excessive moisture.

The mill engineering staff designed the woodroom refuse disposal plant and supervised the construction and the installation of equipment by Mando crews.

by the installation of a suction press roll. Topmost of the two 30-inch diameter rolls which are the first pair in the press section, the new suction cylinder uses vacuum to extract moisture from the Insulite sheet after it leaves the forming section of the machine. The vacuum principle is commonly used in papermaking, but was only recently applied to insulating board machines. Initial operations indicate the suction device cuts down the moisture content of Insulite considerably while it is still on the machine, thereby reducing the volume of water that must be removed in the kilns.

Woodroom Waste Disposal Plant—A better and more economical method of disposing of Mando's woodroom waste is now possible with the company's new waste disposal plant which was recently completed and is presently undergoing trial runs. Costing over $700,000, the new plant has facilities for dewatering waste bark, sawdust and other waste material for use as fuel in a specially designed steam boiler.

Wood waste disposal operations are centered in the large, fireproof building of steel and brick construction

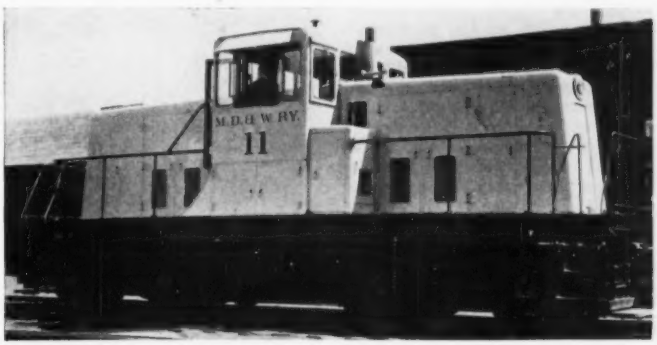


One of two screw presses designed to squeeze moisture from bark and sawdust.

Diesel Locomotives — Two 80-ton General Electric diesel switching locomotives have been added to Mando's Minnesota, Dakota and Western Railway (M.D. & W.) since the early part of 1949.

The new locomotives provide improved service and greater economy in yard operations for this railroad which is a wholly-owned subsidiary of Mando. The M. D. & W. gives round-the-clock transportation service over its main line, and 28 miles of switching track to Mando's International Falls, Minnesota and Fort Frances, Ontario mills. In addition, the railroad also services the town of International Falls.

Purchase of these locomotives makes possible the scrapping of three coal burning steam locomotives which have served the company since 1919. New units are powered by two Cummins diesel engines connected to generators that produce power for electric driving motors located on all four axles. Cabs of new diesels are equipped with two-way FM radio, which provide fast, efficient communications between yard master and diesel engineer.



Modern General Electric Diesel Switchers give economical and efficient service.

New Developments in Cottrell Electrical Precipitators for Kraft Stack Gases

By

L. M. ROBERTS and C. E. BEAVER

Research Corporation, New York, N. Y.

In the October 28, 1948 issue there was included a description of the equipment and some of the operating experiences with Cottrell Electrical Precipitators as manufactured by Research Corporation for the recovery of chemical compounds from sulphate pulp recovery furnace gases. It is the purpose of this article to briefly review this precipitator application and to describe several new major developments in the precipitator design which have taken place in the last year.

The principle of operation of electrostatic precipitators is based upon impressing a high voltage unidirectional current flow across two spaced sets of electrodes, one set of which is filamentary, such as rods, wires, etc., and are known as the discharge electrodes, and the other set known as the collecting electrodes, having smooth or extended surfaces. The high voltage discharge between these electrodes ionizes the gas and charges the suspended particles after which they are attracted to the electrode of opposite electrical sign. As the discharge electrodes are filamentary most of the particles are charged the same polarity as these electrodes and consequently collect on the collecting electrodes. From the collecting electrodes the usual practice has been to rap the material into hoppers for ultimate disposal.

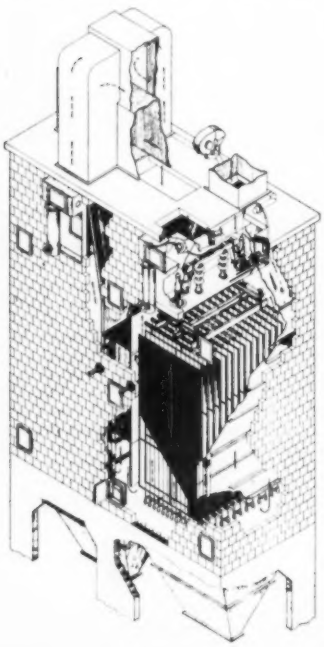


Figure 1.

While a few precipitator installations were made in sulphate and soda plants a number of years ago, it was not until about 1940 that the application received real impetus and the general design of precipitator as described herein utilized. Since that time approximately 59 of these precipitators have been installed or are under construction in sulphate mills alone, handling the recovery furnace gases from over 13,000 tons of air-dried pulp per day.

The general design of precipitator used by Research Corporation for this problem up to the present time is shown in *Figure 1*. This consists essentially of a shell constructed of tile filled with concrete and reinforcing rods and which can be mounted on either a structural steel or concrete wall supporting structure. The collecting electrodes are of the rod curtain type being constructed in a series of parallel rods 3/16" diameter supported in a frame, thereby forming plates which can be made of various widths dependent upon an economic analysis of the problem. These plates are spaced so as to form gas passages 10 inches wide through which the gas passes. In the center of the gas passages are suspended the discharge electrodes spaced about 7 inches apart. The discharge electrodes are supported from insulators which in the precipitator shown in *Figure 1* are located in steel insulator compartments arranged at the top and inside the precipitator and thereby surrounded by the gases. Heretofore, hoppers have been located on the bottom of the precipitator to receive the recovered material from the electrodes from which hoppers it was conveyed in a dry state to black liquor dissolving tanks.

In order to guard against moisture condensation and resultant corrosion, steam coils were provided around the hoppers together with heat insulation and also steam coils provided in the insulator compartments. The whole construction of precipitators for this application must be such as to guard against corrosion.

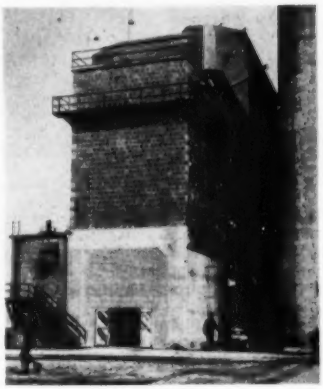


Figure 2.

In *Figure 2* is shown a single precipitator installation in which the effluent gases are discharged to a stack. *Figure 3* shows an installation comprising two precipitators discharging directly to atmosphere.

From an operating efficiency standpoint this type precipitator has functioned very satisfactorily for in all cases the efficiency has surpassed that

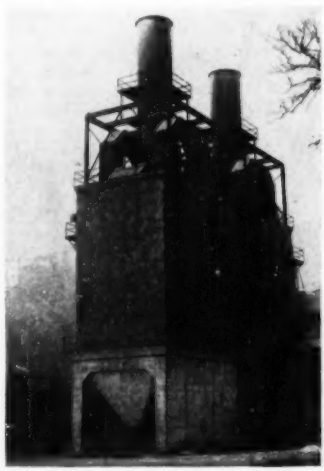


Figure 3.

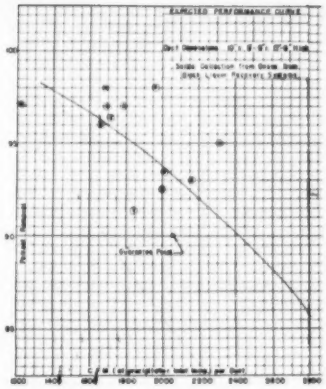


Figure 4.

guaranteed as shown in *Figure 4*. On this curve the average efficiency on each installation is designated by the numbered circles.

While this design of precipitator has functioned very satisfactorily with nominal maintenance (see October 28, 1948 issue of PAPER TRADE JOURNAL) nevertheless development work has continued in an endeavor to obtain the most perfect precipitator for this service. During the past year two major developments in design have been made which are described below.

Insulator Compartments

In the precipitator design shown in *Figure 1* the insulator compartments which are of steel construction have been located inside the precipitator at the top. The gases entering and leaving the precipitator flowed around these compartments. In order to prevent deposition of dust on the insulators air is blown into these compartments in an endeavor to keep the pressure slightly above that existing in the precipitator proper and therefore prevent the infiltration of gases into them. While steam coils are provided in the compartments, the possibility existed that air entering these compartments might tend to chill the gases on the outside of the compartments and result in localized condensation and corrosion. Moreover, about seven feet of tile wall was required to enclose these compartments which could be eliminated if they were moved outside to the roof. In addition, it was thought that easier access could be obtained together with improved high tension vibrator and electrical connections if these compartments were moved outside of the precipitator. In view, however, of the great advantages of the inlet and outlet flue connections as regards means for controlling the distribution of gas and ease of installation, it was felt desirable to retain in principle the flue arrangement as indicated even though the insulator compartments were moved outside.

Accordingly, a design was developed as indicated in *Figure 2* in which the insulator compartments were moved outside the gas stream to the roof of the precipitator. This results in benefits as mentioned above and still retains the very desirable feature of flue arrangement used heretofore. Moreover, this change results in about seven feet less of tile shell required with appreciable saving in first cost.

Dust Disposal Means

Heretofore, the method of collecting the dust has been in hoppers located at the bottom of the precipitator from which it was usually conveyed by screw conveyors to tanks where it was taken up in the black liquor for return of the recovery system. While this recovery method in general functioned satisfactorily, it meant that the dust had to be handled in the dry state until it reached the dissolving tanks. Consequently, precautions had to be taken to insure against condensation in the hoppers which involved steam coils and

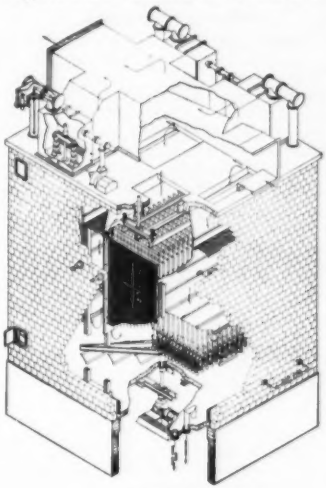


Figure 5.

heat insulation. Also, hopper vibrators had to be used to guard against build-up and plugging in the hoppers, and steam jacketed conveyors provided for moving the dust from the hoppers, all of which involved investment cost. Since the material had to be taken up in the black liquor for re-use, as a matter of principle it would be desirable to get it into the black liquor as soon as possible after it had been removed from the gas. Accordingly, studies were made on the possibility of eliminating the hoppers and substituting a wet recovery system located in the bottom of the precipitator. While this idea had been considered in the past, it was not incorporated on commercial precipitators, primarily because of the fear that the water vapor from the solution in the bottom of the precipitator might wet or dampen the material deposited on the electrodes and hence make it difficult to remove. However, subsequent work indicated that this was a fallacy and accordingly a wet bottom has been developed for the precipitator as indicated in *Figure 5*.

With this arrangement essentially a liquor sump or tank of the same approximate plan dimensions as the precipitator is located immediately under the bottom of the electrodes. This sump can be made of concrete and lined with tile or given a protective coating of material to reduce corrosion and wear. Motor driven rotary agitators are provided to circulate the liquor and facilitate solution or suspension of the dust in the liquor. Black liquor from the multiple effect evaporators flows to the wet bottom of the precipitator where it essentially forms a liquid bath about one foot deep. This bath is agitated as noted above and the dust rapped from the electrodes falls directly into the liquor and is taken up in solution or suspension. The process is continuous, the black liquor entering the wet bottom of the precipitator taking up the dust and discharging through a drain to pumps from which it discharges to the feed going to the disc evaporators. A commercial installation utilizing this method of disposal from the precipitator has been in operation for nearly a year and has functioned very satisfactorily.

In the plant in commercial operation, all the liquor is pumped from the multiple effect evaporators to a head tank of the operating floor of the recovery building. This tank is about three feet square and contains partitions making three compartments. Inasmuch as the installation comprises a three unit precipitator, each precipitator unit therefore has its own compartment in the head tank. From the compartment the liquor flows over three weirs which control the amount of liquor to the precipitator. Each precipitator unit has a liquor pump for controling the flow to the disc evaporator. The schematic flow sheet of the liquor flow is shown on *Figure 6*. The liquor leaves the multiple effect evaporators at about 42% solids at 212°F. and in the precipitator picks up 5 to 7% solids, so that essentially it enters the disc evaporator at 47 to 49%. The wet bottom

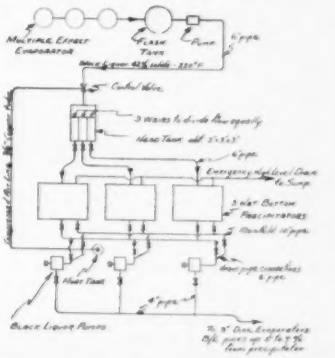


Figure 6. Diagram of black liquor flow for wet bottom precipitators.

equipment is designed to take all load variations and if the furnace calls for a large quantity of liquor it is automatically taken care of, whereas if all furnaces went down or for any reason the quantity of liquor burned is less than normal, this condition is compensated for automatically. The surprising finding in this method of handling the dust is the lack of any solid material in the bottom of the liquor tank. For instance, during an inspection four months after the commercial installation went into operation, the installation showed that there was no sediment or solid material in the bottom of the liquor tank. Apparently the agitators kept the dust in suspension for there were no accumulations requiring manual cleaning.

There was some question in discussing this type of dust removal as to whether the open bottom of the precipitator necessary with the wet handling method would influence the gas distribution within the precipitator. Any great change in gas distribution would, of course, tend to reduce the precipitator efficiency. In order to establish this fact tests were made which indicated that the performance of the precipitator was not affected by the installation of the wet bottom. Average results of these tests are as shown in the following table.

% Precipitator Rating	*% Efficiency*
126	93.4
97.5	96.4

Inasmuch as the precipitators were guaranteed for 90% when handling at 100% precipitator rating, it can be seen that there has been no reduction in efficiency of these precipitators.

The fact that this method of handling the dust eliminates any hopper maintenance and cleaning is very important from the plant operators' standpoint and it is gratifying to know that in the plant where this innovation is in operation the operators are very enthusiastic with its operation. It is believed that this is an improvement which should reduce maintenance costs. As a result of this work it is felt that this method of removing material from the precipitator offers definite operating improvements as well as reduction in the overall first cost.

Electrical Equipment

While electrical equipment located in a substation and utilizing mechanical type rectifiers is still a popular arrangement, electrical equipment utilizing either mechanical or vacuum tube type rectifiers and located in cabinets has been developed for this service. In the case of cabinet arrangements the high tension transformers and rectifiers are arranged in cabinets which in turn are located near the top of the precipitator thereby eliminating the necessity of special high tension cable. The control panels can either be located on these cabinets or installed at a place in the recovery room if so desired.

This method of providing electrical equipment in its own enclosure rather than in a common substation has certain definite advantages. While not in service in the paper industry its acceptance in certain other industries has shown it to be a great aid in reducing maintenance. Also, since the control board can be located near or adjacent to the furnace control board, control of the precipitator can be readily assured.

Electrical precipitators have become a tried and accepted tool in the sulphate and soda mills for the reduction of chemical losses. Actual operating experience on a number of installations over the years in spray type furnaces have indicated recoveries in the precipitator ranging from 88 to 145 pounds of sodium compounds per ton of pulp. Actual precipitator efficiencies vary from 90 to 99% dependent upon the design basis and volume of gas handled. It is believed that the innovations described in this article will render them a more useful tool.

Flambeau Improvements

By

WALTER SHERMAN

Sulphite Superintendent, Flambeau Paper Division, Kansas City Star Co.

The Kansas City Star Company has completed an extensive improvement program under the direction of Mr. Earl E. Robertson, Vice President, and Leonard Kuehl, General Manager of its Flambeau Paper Division at Park Falls.

To supplement the power supply, resulting from the hydroelectric power shortage, a 90,000# capacity boiler to generate steam for the Turbo Generator and other mill usage, and two 1000 KW Diesel generators were installed.

In the yard obsolete equipment was replaced with a new GE Diesel Electric Locomotive for switching and a new Manitowoc Speed Crane for handling wood. The wood storage capacity was increased by purchase of land and installation of railroad track. The installation of a chemi-pulp accumulator and additional capacity in the Acid plant and Screen Room and a hypochlorite bleacher increased the sulphite capacity to 100 tons per day. The addition of a tank increased the bleached Sulphite slush storage capacity by 70 tons. In the paper mill a size press, dryers and electric motor drive were added to No. 2 Paper Machine.

Boiler

The 90,000# Wickes Boiler is a three drum unit with water walls and a maximum operating pressure of 225# and a rated efficiency of 85%. The boiler is equipped with a Pratt Daniels dust collector and flyash return to the combustion chamber as well as a Wickes air preheater which cools the stack gas down from 540° F. to 375° F., while preheating combustion air to 300° F. The coal is fed to the combustion chamber by a Detroit-Roto-Stoker and the ash removed by a Detroit Roto-Grate. United Nuveyor furnished the equipment to remove ash from the pit and convey it to storage. The brick work is Reintjes suspended-wall type. Draft is maintained by Buffalo Forge Company forced and induced draft fans. Diamond Power Specialty Soot Blowers keep the heating surfaces clean.

The operation of the boiler is indicated, recorded and controlled by several types of instruments and regulators. Copes Flowmatic Regulator controls the feed water flow to the boiler. Bailey combustion controls regulate both draft and coal feed to maintain the desired steam pressure regardless of steam flow. A graphic record is made of steam pressure temperature and flow, as well as temperature of feed water. Flue gas temperature before and after the preheater and also, the temperature and flow of preheated air, are recorded. In addition to the recorders and controllers, several indicators are used to check the operation of the boiler. Gauges are used on both steam and water pressure. Draft is indicated by gauges at 6 different points as the gases pass through the various parts of the equipment.

Diesel Generator

The two Diesel generators each have a capacity of 1000 KW. The generators are powered with identical, opposed piston, water cooled Fairbanks Morse Diesel engines of 1600 H.P. each. The piston displacement is 8½ by 10" and the engines operate at 720 R.P.M. The Diesels have separate starting equipment, consisting of compressed air at 600# pressure stored in two 14 foot long bottles. Each machine has its own air compressor to keep the air storage up to starting pressure. Cooling water is taken from the filtered water supply, boosted 8# in pressure as it passes through the water circulation pump and returned to the system for Papermill process water. One Diesel is equipped with a Maxim Silencer and the other with a Burgess Manning Muffler. Each has its own day tank for fuel storage near the engine. The main fuel supply is stored in 4 Butler 10,000 gallon fuel tanks, which are filled and emptied with a

single 2 inch viking Rotary Pump which handles fuel from the tank car to storage and storage to the day tank.

The first unit has a 480 volt, 60 cycle Electric Machinery Company Generator with a 1000 KW capacity at 0.8 power factory. The second unit has a 2300 volt Crocker Wheeler Generator with the same capacity and power factor.

The second unit was set up and operating in the record time of one month from the time the orders were placed. To shorten the time required for installation, all the equipment for this unit is housed in a Quonset building 32 feet wide by 40 feet long.

Diesel Electric Locomotive

The old steam switch engine was replaced with a General Electric 50 ton Diesel Electric Locomotive to speed up switching and yard work. This is a duplex locomotive developing a total of 300 H.P. The two Diesel engines each drive a generator from which power is transmitted to the two separate drive motors and the battery charger.

Speed Crane

An old Diesel Crawler Crane was replaced with a Manitowoc Speed Crane to facilitate wood handling. This Crane is powered with a 125 H.P. General Motors Diesel engine. It is supported by 14 feet of tread 30 inches wide and is equipped with a 60 foot boom. It handles wood with a half cord Clam Shell Bucket.

Wood Yard Extension

The wood storage yard was extended by the purchase and clearing of several acres of land adjacent to the old yard. The new area is serviced by ½ mile of new railroad track.

Increased Sulphite Capacity

The mill's sulphite capacity has been increased to 100 tons by installation of a Chemi-pulp Accumulator and additional acid making and screening capacity. A new Bleacher and Slush storage tank have been in operation for several months.

Figure 1. Seated left to right: J. J. Mulchaey, General Superintendent; S. E. Tomczak, Plant Engineer; Leonard Kuehl, Executive Vice-President and General Manager and C. E. Wells, Power Superintendent. Standing, left to right: Ray Wells, Steam Plant Superintendent and Walter Sherman, Sulphite Superintendent.

Digesters

Additional Digester capacity was gained by installation of a Chemi-pulp high pressure accumulator with all the necessary equipment, pumps, piping and controls. The 23′ x 34′ Accumulator was fabricated by A. O. Smith of Smithclad stainless steel and housed in a Cemesto board constructed building.

Pressure in the Accumulator is maintained with an automatic Relief Control and also the temperature and liquid level are recorded. Liquid Level Recorders were added to the present recording and controlling instruments on the Digesters. All recording and controlling instruments were furnished by Bristol.

A 2000 GPM Warren stainless steel Acid Pump fills the Digesters and circulates the acid during the first one-half hour of each cook to bring the charge up to the temperature of the Accumulator and to bring the acid up to full strength. Another stainless steel Warren Pump supplies cold acid to the high pressure eductor. The stainless steel Valves are Hasco, the stainless steel pipe is Esco and fittings are Misco "C".

Increased Acid Plant capacity was gained by installation of an additional Jenssen type lead sulphur dioxide gas cooler, larger pipe diameters and three Ingersoll-Rand stainless steel Acid Pumps. The Burner is regulated by a Bristol liquid level control and Micromax sulphur dioxide control.

Screening System

The whole screening system was rearranged. Several new items of equipment were added and improvements were made on the rest. Sulphite is flushed from the blow pits into a surge tank. From the surge tank the stock is pumped to an Askania Regulator which controls both the volume of the thick stock and dilution water to pass a regulated volume of uniform consistency stock. The regulated stock is passed to two Jonsson stainless steel Knotters and then to the Flat Screens. The Flat Screens were improved and four new twelve plate Packer Screens added. One of the new Screens is a Packer Super Screen with a cast iron frame and forced feed lubrication system for all the moving parts. New pumps were added and piping and conveying equipment expanded to handle the increased production.

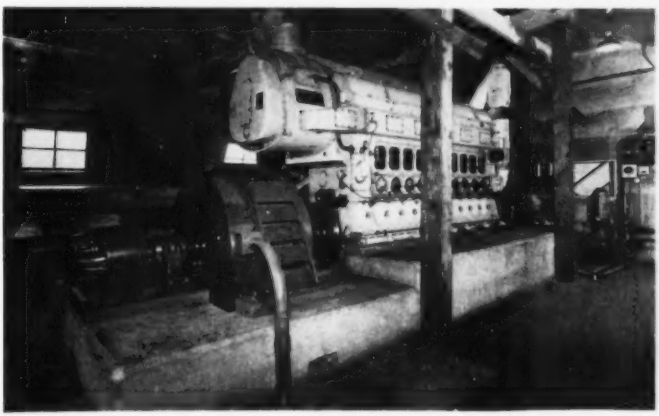


Figure 2. One of the two new Diesel Generators, each having 1000 K W capacity.

Bleach Plant

The fourth Hypochlorite Bleacher, a 4½ ton unit was added to the bleaching system. It operates at a maximum density of 6½% air dry. Stebbins Engineering Company installed the bleacher tank which is constructed of concrete filled, steel reinforced tile.

To facilitate circulation, the tank is

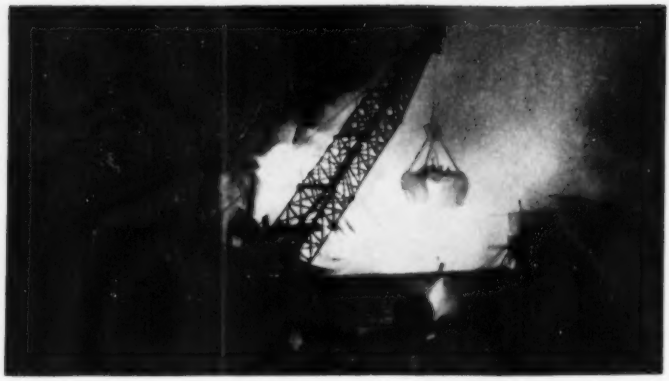


Figure 3. In addition to its regular job of handling pulpwood the new Diesel crane did an excellent job in helping to control a recent fire at the mill.

designed with an inner sleeve or ring 8 feet in diameter and is funnel shaped at the bottom. The agitator was designed by the Fleambeau Engineering Staff. It is a low head pump, mounted at the constriction of the funnel in the inner sleeve at the bottom of the Bleacher. A short screw conveyor fills

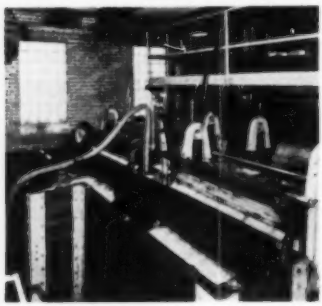


Figure 4. Jonsson knotters improve efficiency of screening system.

it from the present conveying system, and the Bleacher is dumped by a remote control hydraulic valve and a low head pump.

Slush Storage

A concrete tank was installed to store bleached sulphite in slush form for pumping to the beaters at 5½% consistency. The tank's capacity is 70 tons. In this tank the pulp is circulated by 2 Nekoosa Section Screws 36 inches in diameter, set in the midfeather at one end of the tank. The circulation set in motion by the screws continues around the far end of the midfeather and back to the screws.

The pulp is delivered to the beaters through a 10" pipe by a 10 x 8 CWF Allis Chalmers Ash Pump powered with a 100 H.P. Motor and texrope drive. The Pump is fed by an Allis Chalmers Pump feeder operating in a separate chamber attached directly to the tank. The pump and feeder can be operated intermittently, just while filling beaters, but the circulation is maintained continuously with the screws.

Utilization of New Capacity

It is expected that the increased sulphite production will provide sufficient pulp to allow both machines to operate entirely on sulphite papers, after the newsprint commitments are filled. In the meantime the excess sulphite capacity will be sold on the spot market.

No. 2 Paper Machine

On this machine, which trims 122 inches, a Beloit Size Press, 11 Beloit Dryers and a General Electric Variable Speed Motor Drive were added.

Size Press

The Size Press is equipped with two rubber covered press rolls with pneumatic loading. On this press, the surface size may be applied to either or both sides of the sheet as desired in varying amounts. Wrinkles are avoided with the Beloit fan system which balloons the sheet up from the bottom to provide a uniform tension all the way across the machine. The tension prevents wrinkles, folds or puckers being carried into the after dryer section.

Starch or other sizing material is prepared in a series of tanks designed and laid out by Penick & Ford. Gould Pumps transfer the size from the Beater Room to the Machine Room Basement and also supply the size press from the constant level tank. Foreign material is removed from the size as it is pumped from the storage tank to the holding tank with two Andale removable basket type filters, covered with 40 mesh wire cloth. They operate in parallel so that either may be cleaned and still maintain the operation of the size system through the other. All fittings, valves and piping are copper and bronze to inhibit slime growth. The temperature of the size system is thermostatically controlled to maintain uniform viscosity.

The starch system is quite flexible. The size may be made up in quantity for 60 hours in advance, or it may be operated to supply alternately as many as three different size mixtures for various grades of paper, rotating from one mixture to another. Also, a long run of one mixture may be interrupted in the middle with a different mixture without dumping any tanks or stopping the flow to the size press.

Dryers

Four new dryers have been added to the old dryer section and seven more dryers installed after the Size Press. The whole dryer section and size press are equipped with rope carriers which catch the sheet just after it leaves the dual press and carry it to the size press. The second set of ropes carry the sheet through the size press and over the last seven dryers. The dryers are equipped with Nash felt guides. Beloit dryer felt tighteners and a Broughton drainer system, including Midwest Fulton flexible joint syphon pipes and Johnson steam joints.

Constant control of moisture in the finished paper is maintained with a Stamm Automatic steam regulator. The steam condensate from one dryer is measured, and the variation in quantity of water actuates the steam valve which controls the steam flow for the rest of the dryer section. Both the dryer sections before and after the size press have separate Stamm steam controllers which can be interlocked and operated as one when the machine is operated without the size press.

Motor Drive

The old Corliss Steam engine drive was replaced with a single unit General Electric D.C. Motor which drives the paper machine through V-Belts. The operating speed can be changed over the range of 150 to 700 feet per minute by a simple twist of the operator's wrist at the control panel. The speed is held constant with less than ½ of 1% variation even though the power required by the machine may change as much as 20%, and starting and stopping are especially smooth with this equipment. The drive consists of a Motor-Generator set, a D.C. Line-

Figure 5. Askania control valves for stock and water are automatically adjusted.

shaft Motor and an electronically controlled Amplidine speed control system. A 300 H.P. synchronous motor drives the 200 K.W., 250 volt, D.C. Generator and a 7.5 K.W. exciter which converts the power from alternating to direct current for the 250 H.P. D.C. Lineshaft Motor. The speed is controlled by an electronic amplifier which compares the output voltage of the pilot generator on the lineshaft motor with the speed reference voltage, the difference, if any, is applied to the amplidine exciter field in the proper direction to provide the correct excitation voltage and current to the main generator field, to hold the speed of the lineshaft motor constant.

With this new equipment, the paper machine makes 60 tons per day on a range of possible weights from 16# to 45# Bonds and Ledgers, with a speed range of 150 to 700 feet per minute. The flexibility of the speed and weight, together with the ease of manipulation of the size press system, makes it possible to manufacture a wide variety of Bond, Ledger, Book and Offset papers.

Many Improvements at Nekoosa-Edwards Mills at Nekoosa and Port Edwards

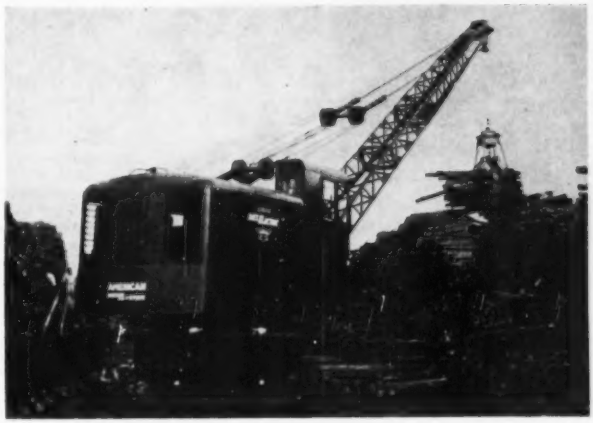


Figure 1. 40 ton Diesel-electric crane built by American Hoist & Derrick Co., for use in the pulpwood yards of Nekoosa-Edwards.

Diesel Electric Crane

A 40 ton Dieselectric crane is now in service in the Nekoosa yards where it is speeding the handling of pulpwood and other materials. The new crane has a 60 foot boom as compared with the 55 foot booms on the four other Nepco cranes, and it weighs 117 tons as against 80 tons for the other cranes. It is of the latest and most efficient design produced by American Hoist & Derrick Company of St. Paul, Minnesota.

The operation of the new crane is diesel-electric in principle. Diesel power drives all of the mechanism located above the deck by means of a silent chain mechanical drive. This same drive shaft is linked with a generator which supplies electrical energy to the motors that power the truck section of the crane. Simplicity of operation is characteristic of the Dieselectric. Control levers are operated by airpower rather than manually, thus practically affording fingertip regulation.

Safety Features

The cab of the new crane sets three feet higher than the cabs on the other Nepco cranes. This enables the operator to look into the highest gondola cars to determine whether they are empty. It is also a safety factor because if there are any men in the gondola they will be readily visible to the crane operator. An additional safety factor is provided by having the floor of the cab set high enough above the base so that no one can be crushed between the cab and the base.

The Dieselectric is capable of speeds up to 15 miles per hour, nearly three times as fast as the earlier steam powered models. This cuts down the time spent in traveling between jobs. Other savings in time result due to the fact that it is not necessary to load up with coal and water, an operation that requires nearly two hours per day. A considerable saving in the cost of operation results because of the greater efficiency of the diesel-electric principle. The new crane will also handle heavier loads over a wider radius, the greater weight serving to prevent tipping.

Dilts Miami Waxer

Product versatility at the Nekoosa mill of Nekoosa-Edwards Paper Company has been increased by the recent installation of a new Dilts Miami waxer.

In the Dilts Miami waxing equipment the paper is run through a bath of molten wax, passed through a set of two or three squeeze rolls which serve to meter the wax on the sheet, and then through a refrigerated water bath

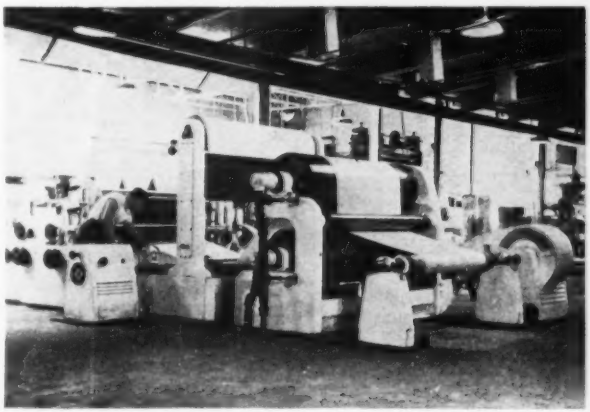


Figure 2. New waxing equipment recently installed and now in operation at the Nekoosa mill of Nekoosa-Edwards Paper Company. A variety of waxing operations can be performed on the Dilts Miami 72" waxer including wet waxing on either one or both sides of the sheet.

or over cooling rools, after which it is wound up on the winder.

In general, there are three types of waxing in common use, all of which can be performed on the new equipment. One of these is wet or surface waxing where wax is applied to the surface of both sides of the paper. This sheet is produced by passing the web of paper through a molten wax bath and then arresting the penetration of the wax into the sheet as quickly as possible by the use of cold rolls or a cold water bath. This process imparts good self sealing qualities in addition to moisture vapor characteristics to the sheet.

A second type of waxing is known as dry waxing. In this process wax is simply applied to the paper and allowed to seek its own absorption level. Penetration of the wax can be assisted or hastened by passing the sheet over a hot roll after it has left the waxing section. The type of dry waxed product being made dictates whether or not cooling equipment is required in the operation.

A third type of waxing is one side waxing. Typical of a one side waxing operation is Nepco Waxed Locker Paper. In this case it is desired to apply wax to only one side of the sheet so that the other side will be free for marking, stamping, and the application of pressure sensitive tape. A special blend of waxes that will not become brittle or flake off at subzero temperatures is used on Nepco Waxed Locker Paper. The waxes used in the new equipment are compounded differently for different jobs, depending on the characteristics, desired in the particular paper being treated.

The Dilts Miami waxer employs the squeeze roll type of wax application. Briefly, in the case of two side waxing, the sheet is fed into a wax bath from which it passes between the squeeze rolls where the desired amount of wax is metered on to the sheet. After leaving the squeeze roll section, the sheet is run over cold rolls and then wound up. If the sheet is to be waxed one side it is not dipped but is sent directly into the squeeze roll section, the wax being applied to the sheet by the bottom roll running in the wax bath and serving as a pick up roll.

Where only an extremely light coating of wax is required, a three roll section is used in which case wax is picked up by the bottom or pick up roll, transferred and metered to the center or applicator roll, and applied to the sheet running in the nip formed by the top and center rolls. The amount of wax applied is further regulated by varying the pressure on the top and applicator rolls. The equipment is designed and constructed for high speed precision operation. Speeds of 1500 feet per minute and above are possible and wax applications as low as one pound per ream are in order.

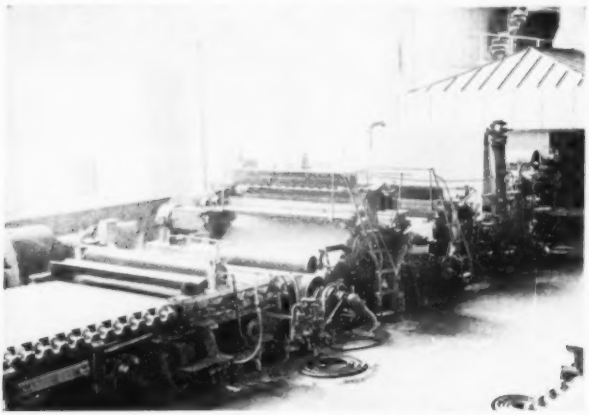


Figure 3. New Fourdrinier on number five machine at Port Edwards.

New Fourdriniers on Five and Six Machines

A major step in the Nekoosa-Edwards modernization and expansion program was completed recently with the installation of complete new fourdrinier sections on Nos. 5 and 6 machines at Port Edwards. A new roof over the two machines was completed a year ago together with extensive improvements in lighting and ventilation. These improvements along with the recent installations will insure even better quality fine papers from the two paper machines.

The two new fourdrinier installations include rubber covered tube rolls, rust and corrosion resistant rails and white water trays, and automatic wire tension control. In addition, improved doctors on the breast roll and the wire rolls are now in operation. Both machines are equipped with the latest type hoods on each dryer section. These hoods are connected to a Briner Economizer which transfers heat from paper machine vapors to the machine room heating system.

The automatic tension control and the improved roll-doctors serve to lengthen the running time or life of the fourdrinier wire by preventing slippage and by keeping the wire rolls free from stock accumulation. This feature not only results in economies in machine clothing and equipment, but also serves to cut down on the amount of down time resulting from premature wear of the wire. The modern ventilating system in the numbers 5 and 6 machine is entirely automatic. Its operation assures uniform temperatures contributing toward more comfortable working conditions for paper machine personnel.

Improvements on Number Seven Paper Machine

Recent improvements on Number 7 machine at Port Edwards and Number 4 at Nekoosa are contributing to higher quality with increased efficiency on

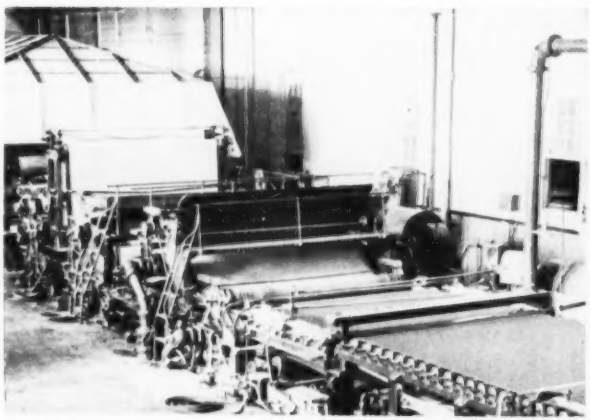


Figure 4. Number six paper machine at Port Edwards gets new Fourdrinier.

those machines. The installations, part of the never-ending Nekoosa-Edwards program of making good papers better, are a center wind drum reel on No. 7 and a Cameron winder with score cutters on No. 4.

The center wind drum reel on No. 7 machine is of the latest and most advanced design, and is one of the few installations of its kind in the country. The essential difference between the new type center wind drum reel and the conventional drum reel is in the method of driving. After the paper is started on the center wind drum reel the spool is independently driven instead of relying on the weight of the spool on the drum as the driving medium.

Several advantages may be traced to the use of the center wind drum reel. Because the spool on which the paper builds up is independently driven the weight of the roll as the paper builds up is not brought to bear on the drum. This factor, and the fact that there is constant automatic control over the tension of the paper, results in uniform and even winding throughout the entire reel. This serves to eliminate the possibility of wrinkles that sometimes occur with the conventional drum reel when tension throughout the winding process is not uniform.

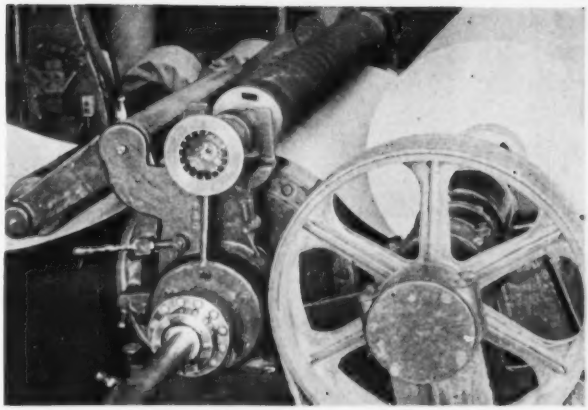


Figure 5. Center wind drum reel on number seven paper machine at Port Edwards.

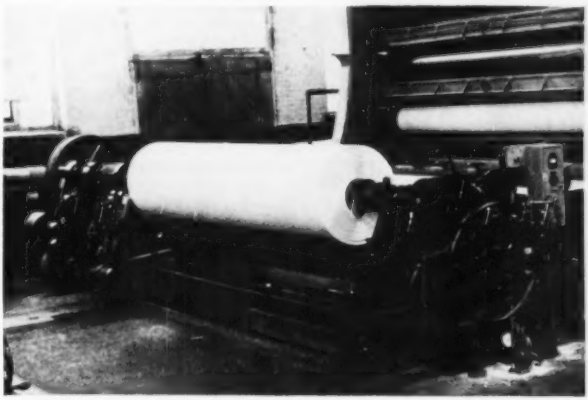


Figure 6. New Cameron winder on number four paper machine at Nekoosa.

Another advantage of the center wind drum reel is in the elimination of waste in changing reels. When stack reels or conventional drum reels are used there is a certain amount of broke produced when changing from one reel to another. With the center wind drum reel there is an instantaneous transfer from one spool to another.

New Winder on Number Four

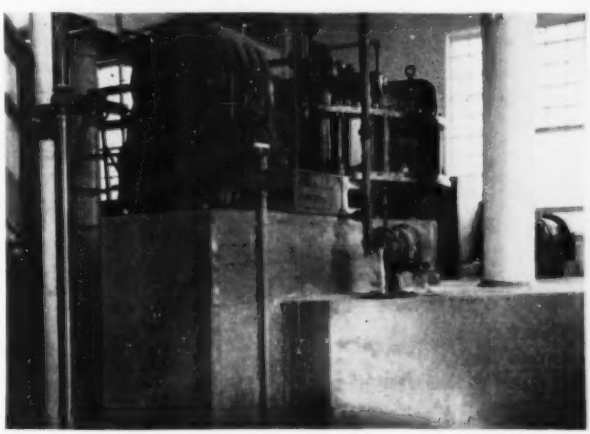
The Cameron winder recently installed on Number 4 machine at Nekoosa is resulting in improved winding of papers made on that machine. The new winder makes use of the score cutting principle instead of the usual shear cutting. On winders using the shear cutting principle the slitters are usually located between the back stand and the winder drums and at a level higher than the paper being wound on the winder drums. The score cutters on the new Cameron winder are located at a level lower than the winder drums.

During the slitting and winding operation there is often a small amount of unavoidable lint in the atmosphere surrounding the winder. When the slitters are located above the level of the drum reels, as is the case with the conventional shear cutting winders, there is the possibility that some of this lint may find its way into the roll as it winds up on the drums. Whatever negligible amount of lint is created in score cutting on the new winder would not find its way into the roll. Any lint deposited on the ends of the roll can be easily brushed off.

New Bleach Plant

Full bleached sulphite pulps of improved quality are now being produced at Port Edwards due to the installation of expanded bleachery facilities. The new facilities were installed in the Port Edwards sulphite bleachery during the past several months. The bleachery now is capable of handling

Figure 7. Enlarged sulphite bleachery facilities at Port Edwards.



the total production of the sulphite pulp mill.

The bleachery additions consist of a fourth high density hypochlorite tower and a continuous high density caustic extraction stage. A principal objective of the new installations is to achieve pulp of greater cleanliness and brightness through the use of lesser quantities of chemicals and lower temperatures in the bleaching process. Because lower temperatures and less chemicals are used the tendency now is toward improved strength characteristics and a higher retention of fiber during the bleaching operation.

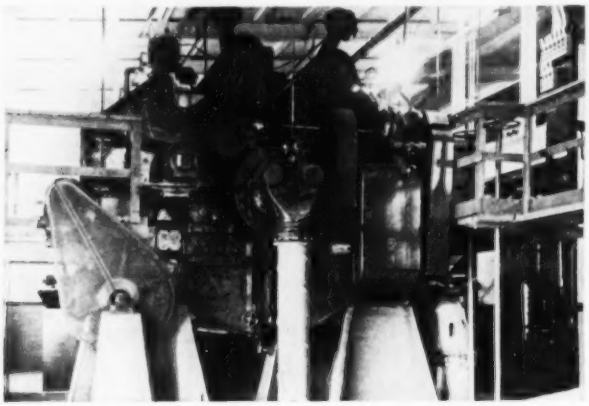


Figure 8. New washer in sulphite bleachery.

A new Impco vacuum washer installation has been provided for washing the stock after chlorination. The stock is discharged from the Impco washer at about 15 percent consistency to the high density caustic tower. All parts of the washer that come in contact with the stock are either stainless steel or rubber as a means of preventing corrosion and eliminating any possibility of dirt getting into the system.

An addition to the bleach plant building was required in order to accommodate the expanded facilities, and provision was also made at that time for a technical control laboratory and a new washroom for bleach plant employees. The technical control laboratory is to be used as headquarters for pulp and paper mill technical service. It is expected that this arrangement will result in improved control and service.

Kraft Mill Brown Stock Washing System

Construction is under way at the Nekoosa kraft mill to provide for the installation of a continuous brown stock washing system to replace the present diffuser system of washing. The equipment will be housed in the old recovery building which is being raised approximately 30 feet to accommodate the installation.

The new system will make possible a more uniformly washed pulp which in turn will result in a more uniform bleached product. It will also allow for increased capacity of the kraft pulp mill due to the increased capacity and speed of the washing system. Among other advantages of the new system are saving in soda, improved screening, and a better use of white water in the Nekoosa wet room. It is expected that when the installation is completed the capacity of the kraft mill will reach approximately 200 tons daily which is one-third greater than present capacity.

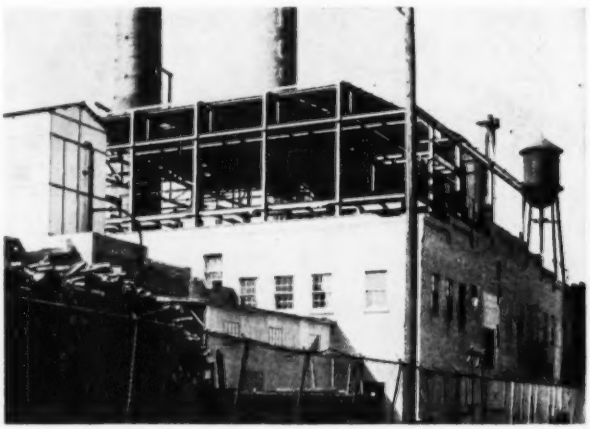


Figure 9. To house new washing system.

New Equipment

Equipment in the new system will consist chiefly of vibratory knotters, rotary vacuum washers, a 25 ton blow tank, several 30 foot diameter liquor tanks, foam breakers, and the necessary auxiliary pumps and piping. The vibratory knotters are intended to eliminate knots ahead of washing. The three 8 x 16 rotary vacuum washers will be operated in series.

With the installation of the new brown stock washing system, three old diffuser rings from the present washing system will be removed. The elimination of the diffusers will provide additional digester room for future expansion of pulp mill capacity. It is hoped that the new system will be in operation by 1950.

Nekoosa Filter Plant

The capacity of the Nekoosa mill filter plant will be more than doubled when construction is completed on a new addition to the plant. Workmen are now placing forms for the footings of the building extension and for the filter beds. Filter plant capacity will be boosted from 3,600 gallons per minute to 8,400 gallons per minute of clear water with a color content of less than five parts per million.

The present Nekoosa filter plant went into operation during October, 1947. It houses a coagulation basin and six filter beds using anthrafilt as a filtering medium. Impurities in the water are taken out by the anthrafilt as the water passes through it. Water that is pumped from Nepco Lake to the filter plant has already been treated and processed in the Nepco Lake settling basin in order to reduce impurities and lower the color count. When it reaches the Nekoosa filter plant it enters the coagulation basin where it is treated to support the formation of a floccule which assists in the process.

The water then passes through the filter beds and on to the bleach plant. The filter beds are supplied with backwashing equipment in order that frequent cleansing of the anthrafilt may be accomplished with as little effort as possible. All pumps and valves are automatically controlled from operating panels conveniently located at each filter bed. Four filter beds will be included in the new addition making a total of seven. With the increased filtering capacity greater tonnages of fully bleached kraft pulp will be possible at the Nekoosa mill.

Puseyjones Paper Making Machines

Embody Marked Design Improvements

Flow Spreader for Fourdrinier Machines

The Puseyjones flow spreader permits the formation of stock of different weights, over a wide range of speeds, and gives the best possible formation for each condition.

With the Flow Spreader, the stock is spread uniformly to the full forming width of the machine. The basic principle is a hydraulic nozzle with moderate angle of spread and considerable spreading length. Each spreading pass has a progressively reducing area while widening out, squeezing the flow during spreading.

The multiple pass design results in a compact unit which is easily washed up. The "turn-arounds" are at constant width, stabilizing the flow after each spreading pass. The entire flow enters at one inlet at the center line of the machine and delivers a stable flow to the slice with uniform consistency across the full width.

The Flow Spreader is placed directly below the slice. Connection is made to compartment just back of slice. A perforated distributor roll may be introduced in the connecting compartment when desirable.

A closed pressure slice is now used on high speed machines forming the ideal approach flow to the fourdrinier wire. The slice is designed with lip adjustments so slice position can be changed to suit specific requirements. (See Figure 2.)

"RAPI-DRAPE" Wire Handling

The "Rapi-drape" Method for installing fourdrinier wires pioneered by Pusey Jones requires less tending aisle space and shortens the handling time to less than an hour.

The back of the Fourdrinier is supported on frames. A removable undercarriage, motor-operated, supports the front side in perfect alignment at all times. There is no danger of deflection and distortion as experienced with so-called removable Fourdriniers. Fourdrinier proper remains in operating position during wire change.

The wire holder contains the new wire and all inside supporting poles. It is stored at a convenient place in tending aisle while machine is in operation. During draping operation which commences at breast roll end, the wire holder is held by overhead crane.

The undercarriage is rolled into the tending side aisle on suitable tracks set at or below floor level. Front side footboard remains intact along the front of the undercarriage, affording means of conveniently handling wire poles while draping the wire. The two top tracks forming part of the undercarriage are hinged and swing toward the front side while the wire is being draped. Afterwards, they are swung back to operating position inside the wire loop.

Stream Flow Vat System

The Stream Flow Vat System for Cylinder Machines establishes the ideal relation between stock flow and mold speed in a few seconds while running.

The Stream Flow Vat has an outer vat circle which serves as a final approach pass before the making board. The inner vat circle is independently adjustable at front, bottom and back. The whole construction is very rugged and simple.

The Stream Flow Cylinder Mold eliminates the crude center and spider construction and the resultant turbulence inside the mold preventing free flow of white water to the ends. The new construction permits the introduction of vacuum with increase in drainage capacity and higher pick-up speed. (See Figure 3).

An integral part of each Stream Flow Vat System is a Flow Mixer, Up-Flow Head Box and Flow Spreader, in addition to the adjustable circle vat.

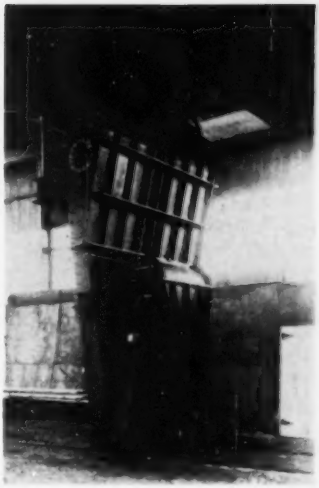


Figure 1. Shop Assembly of Flow Spreader and Slice for 130-inch Specialty Machine.

New Installations

Since August, 1948, four paper machines have been started up by Pusey & Jones Corp.

The first, a 154" facial tissue machine for Rushmore Paper Mills, Natural Dam, New York, was designed for a maximum operating speed of 1500 f.p.m. and a production of 25 to 30 tons per day.

St. Regis Paper Company's 180" fourdrinier high-speed kraft bag machine at Tacoma, Washington, also started up in January, is intended for production of 250 tons per day. (See Figure 2).

The 112" four-cylinder machine built

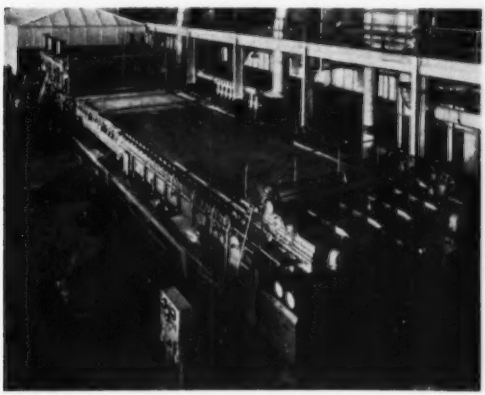


Figure 2. St. Regis 180 inch. High Speed Kraft Bag Machine.

Figure 3. Stream Flow Vat and Mold installed on 168" Felt Machine.

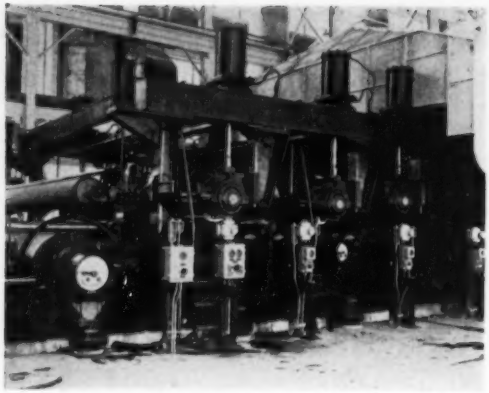


Figure 4. Simplex Press Part Showing Improved Lump Breaker and Couch Draw Roll Arrangement.

for Crocker, Burbank and Company Assn., Fitchburg, Massachusetts, is the second of two similar multiple cylinder machines of latest design for the manufacture of high-grade boards, equipped with Goldsmith Steam-Flow vat system.

Latest of the group is the high-class 156" fourdrinier kraft liner machine in the new plant of Fibreboard Products, Inc., East Antioch, California, designed for production of 125 tons per day.

Under erection is a fine paper machine for Papierfabrik Utzenstorf in Switzerland which is scheduled to start up around the end of this month or early October. This is a 138" fourdrinier machine, maximum speed 1200 f.p.m. for the manufacture of 50 tons per day of groundwood specialties.

Three Goldsmith Stream-Flow Vat Systems, each equipped with the latest type vacuum cylinder mold, were recently shipped to Sweden for Stjernfors-Stalldalen. This wet end will be used on a new machine the remainder of which was constructed in Sweden and Germany.

Simplex Press Part

The Puseyjones Simplex Press arrangement reduces space occupied by the Press Part and allows for the installation of additional dryers to speed up production.

The Simplex Press Part provides continuous automatic control and recording of roll nip pressures.

The usual upper press roll arms are eliminated by the use of vertical guides at the bearing housings. Pressure is applied to the upper rolls by pneumatic cylinders attached to overhead frame work.

The space for handling felt changes has been made more accessible, therefore the time required for this purpose is less than that for the conventional design, and the floor space required is considerably less.

When a break occurs in the press section, the sheet is automatically broken down directly after the couch roll by a stream of high pressure water directed across the machine and controlled by a photo-electric eye. Broke conveyors therefore are not required.

Further reduction in the time consumed for installing fourdrinier wires is obtained by an improved design of support for the lump breaker roll and couch draw roll, by supporting this equipment from the adjacent press framing. Air cylinders are used for raising and lowering the lump breaker unit. (See Figure 4).

Sprout-Waldron Refiners at Maizewood

Recent installations of Sprout-Waldron 36-2 Refiners include the three 400 H.P. units and constant speed stock conveyors at Maizewood Insulation Company, Dubuque, Iowa.

Field of Application

The single disc mill is used on kraft, soda, and sulphite knotter and fine screen rejects; on hogged bull screen rejects; knotter and second screen rejects of raw groundwood; on semi-chemical chips of all kinds; on spent chips after extraction processes; on bagasse, straw and similar grasses, for breaking down lumps in reclaimed waste paper stock; for refining kraft, sulphite, and soda fully cooked chemical pulps, and for reduction and refining of rag and other half stocks.

One essential function is to break down chips, knots, and bundles of fiber to a fiber which will pass a given size screen. This will be accompanied by some hydration and improvement in Mullen, but this is relatively small and only incidental to the reduction in size of fiber.

For best results, the stock must be fed at a uniform rate. Chips should be of a uniform size so far as practicable. Long slivers should first be hogged to pass a 1" screen, preferably smaller.

After reduction to size, the pulp may be sent to another similar unit, but equipped with different plates to secure a further reduction in freeness and an absolute minimum of cutting action; with a substantial increase in Mullen and a low loss in tear. The two effects, however, cannot be accomplished at the same time in the same mill.

Satisfactory operation may be secured over a wide range of consistences. Average practice is to use 4 percent consistence, but good results have been secured up to 8 percent; and under favorable conditions higher consistences have been used. Whatever consistence is used, however, it should be maintained reasonably closely for any given refiner setting.

Principle of Operation

One set of plates is fixed to the mill shell and another set to the rotating disc. Stock is introduced in the center between the grinding plates and discharges around the periphery, movement of the stock being effected by the rotating disc. Cutting, rubbing, rolling, etc., as may be required, takes place between the bars of the plates. These plates operate at very close clearances, but need not actually rub or touch, thus assuring their long life. They are cast from a special hard white iron, Ni-Hard, manganese, or stainless steel. The stock flows with a spiral motion in the groove between adjacent bars or teeth and is caught between opposing bars in its passage through the plates. Patterns are designed so that for a given problem the stock does not completely fill up the space between, which would cause it to act similarly to a disc clutch and consume an excessive amount of power. No load and circulating losses are at a minimum.

Changes in characteristics of the finished pulp are secured through selection of plate design, variation in consistence, and disc settings. Minor fluctuations in the rate of feed, within the capacity limits of the machine, do not cause perceptible changes in the resulting pulp quality.

Finished stock is thrown out around entire periphery of revolving disc where it may be restricted to any desired extent by manipulation of the peripheral control ring, operated by hand wheel located on front of stationary swing head.

This refiner has been designed with a single runner disc so that the plates are always parallel to each other at any operating speed. This permits a control over the finished fiber, resulting in a pulp with a minimum of "flour" or fines and almost free from shives.

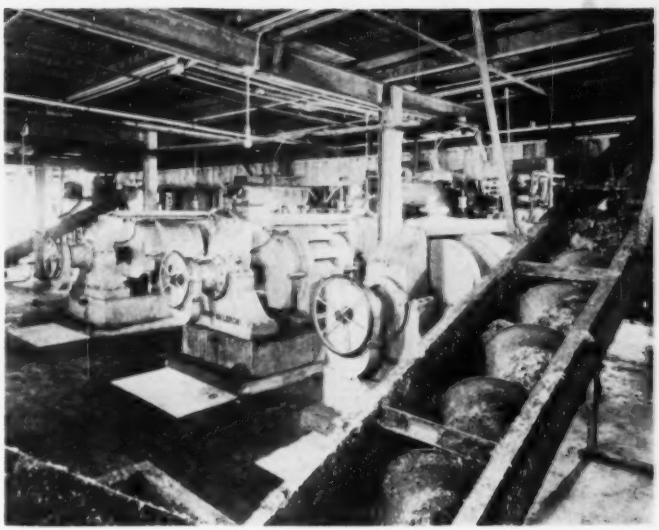
For the Maizewood installations, constructions are *standard:* in which the surfaces in contact with the stock are of cast iron, cast steel, and mild steel; *semi-acid resistant construction:*

in which the surfaces in contact with the stock are lined with stainless steel or are solid stainless steel; *fully acid-resistant construction:* in which all areas in contact with stock are solid stainless steel.

Standard construction is recommended for pH range 5.5 – 9. Semi-acid resistant construction is recommended for pH 4.0 – 5.5 and above 9, while fully acid-resistant construction is specified below 4.0 or when particularly corrosive conditions are present such as is found in stock from the Asplund system and steamed chips.

Motor for the refiner is built in and may be of induction or synchronous type for any standard voltages, phases and cycles, either splash-proof or enclosed pipe-ventilated. (Synchronous motors have either 0.8 or unity power factor.) Construction applies power directly to the mill shaft. Drive will ordinarily range from 100 hp. for light duty up to a maximum of 450 hp.

Stock	Hp per day
Semi-chemical chips	8 to 12
Pre-refining kraft stock	4 to 6
Steamed chips for insulation board	20 to 25
Secondary refining—Felt after Asplund Defibrator	5 to 8
Kraft knots from Hammermill	14 to 16



Three-Refiner installation at Maizewood Insulation Co. Motors range from 300 to 450 H.P.

Bagley & Sewall Co. Industry Contributions

A review of the activity in paper machinery construction in 1948 is interesting today in the light of the changes that have taken place in the last few months, a spokesman of the Bagley & Sewall Co., Watertown, N. Y., points out.

"At the beginning of the year machines that had been under construction prior to January 1 were beginning to go into operation. Among them was a machine for the W. C. Hamilton Co., Miquon, Pa., to manufacture high grade bonds, ledgers, and other fine writing and high grade specialties; the Chase Bog Co., Chagrin Falls, Ohio was starting production of a machine for the manufacture of kraft bag paper; and Southland Paper Mills, Inc., Lufkin, Texas, began production of newsprint on its new 238th machine. Also, we had completed a machine for the Dexter Paper Co. at Dexter, N. Y., for the manufacture of glassine and kindred products, although this machine has not as yet been installed," he recounted.

"In addition to these we participated in the reconstruction or rebuilding of other machines such as the Continental Can Co. plant at Hopewell, Va., with an addition to the dryer section and the fourdrinier part manufacturing kraft liner and other grades. There was an addition to the machine of the American Coating Mills at Middletown, Ohio, and other parts are now to be built to complete this rehabilitation. There were fourdrinier additions to Fleming & Sons, Inc., Dallas, Texas, and also to the Nashua River Paper Co., East Pepperall, Mass., operating now under the name of the St. Regis Paper Co. A sizable addition to the new machine at the Sonoco Products Co., Hartsville, S. C. was complete and operated, and under construction is a rebuilding program for the Mead Corp. at its Sylva, N. C., mill. Also there have been additions to the Sangamon Paper Mills at Eaton, Ind.; Stone Container Corp., at Coshocton, Ohio; Whiting-Plover Pipe Co., Stevens Point, Wis., and others.

"Our activity in foreign countries has given us a new machine for Brazil, two new cylinder machines for Finland, a cigarette paper machine for France, and a machine in South Africa. We also have rebuilt one machine in Finland and three machines in Newfoundland. A machine for France and a small machine to be used for school and experimnetal purposes for Canada are still in prroduction.

"It is our opinion that the continued activity in the paper industry at a fairly high rate and the development of new uses for paper and paper products will continue the demand for paper mill equipment."

New Durco Type-B Corrosion-Resisting Plug Valves

A new line of Durco plug valves has been developed by The Duriron Co., Inc., New York, for heavy duty corrosive service.

Two new basic designs, plus a comprehensive range of corrosion resisting alloys, offer a choice for nearly every type of operating and corrosive condition in the process industries. These new designs and improved manufacturing technique permit the successful use of plug valves for services where such valves were often troublesome.

All Durco Type B Plug Valves have these features: (1.) Wide range of corrosion resisting alloy bodies: Durimet 20, Chlorimet 2, Chlorimet 3, Durco D-10, Pure Nickel, Inconel, Monel and Ni-Resist. (2.) Hard, hardened or hard-faced plugs with grooves *cut* after grinding and lapping. (3.) Teflon diaphragm to provide a completely corrosion resisting self-lubricating seal. (4.) Provision for lubrication with bulk or stick lubricant. (5.) Proper plug taper, grinding and lapping for good continuous seating, long life and positive mechanical operation in corrosive service.

The top lubricated Durco Type B Valve has the lubricator in the plug shank. The plugs are hardened or hard-faced. The bottom lubricated Durco Type B Valve (used where plugs are too hard to machine readily) is provided with a lubricator in the body, below the plug. The plug is flexible jointed, the plug proper being made of Duriron, Durichlor or other hard corrosion resisting metal, while the plug shank is made of Durimet 20.

Chip Silo for Bird

A reinforced concrete silo, 70 ft. high with a diameter of 40 ft., is being constructed for Bird & Son, Inc., at Phillipsdale, R. I., by The Rust Engineering Co., Pittsburgh, Pa.

The new project, which will also include a conveyor to the wood preparation department, will make possible sufficient storage of wood chips to eliminate present necessity of operating the chipper 16 hours a day.

Improvements at Stevens and Thompson Company

Stock Preparation

All of the beaters in this mill have been replaced by three Hydrapulpers, two of which are 10 feet in diameter, the other being 12 feet in diameter. A large water tank is installed above each Hydrapulper. These tanks serve two purposes. They allow accurate measurement of all water added to the stock and since all pulp is weighed before being put in the Hydrapulpers it is possible to maintain accurate consistencies throughout the mill.

These tanks also are used to allow rapid dilution of stock in the chest when a batch is dumped from a Hydrapulper. Since each tank is filled slowly while the Hydrapulper is being recharged, there is no lowering of water pressure by a sudden large demand for water such as would be necessary without the tanks.

Pulpwood Storage

A unique method of handling and storing pulpwood is used at this mill.

Water storage tank above Hydrapulper.

The pulpwood bolts, all four feet long are unloaded from either trucks or railroad cars into cradle cars which are spotted against a backboard. Each cradle car holds a circular bundle of wood containing ¾ cord. Each bundle is thus firmly held together and may be handled as a unit. With this method it is possible to store more wood in a given yard area due to decreased air spaces and the ability to stack the bundles higher than loose wood can be safely piled. There is also a considerable saving in handling costs since practically all hand labor is eliminated.

Baled Pulp Handling

The pulp storage room was built about a year ago and is simply an addition to an extra building. It has a capacity of about 1,100 tons of pulp. Most of the pulp comes from Canada and generally is either bleached soda pulp or sulphite pulp. It comes in bales weighing from 400 to 500 lbs., which are 24 inches to 30 inches in length and

Portion of woodyard showing pulpwood bundles.

width, by 16 inches to 24 inches high.

The storage room has a balcony with doors that open to the outside. Just outside of the doors is a railroad siding. The pulp comes in box cars which are brought up as close as possible to the doors of the balcony. The pulp is removed from the box cars manually by use of common two-wheel hand trucks and are taken inside and placed on the floor of the balcony. From this point they are picked up two or three at a time, depending upon the type of pulp, by use of a Cleveland Tramrail screw grab and cab-operated crane.

The crane is rated at one-ton capacity although each hoist block is marked 1500 lbs.

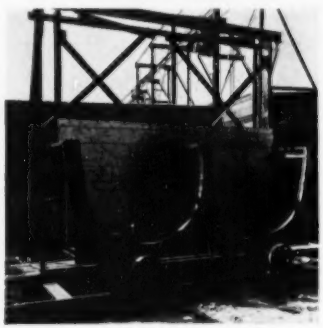
A count of the bales in the room indicated that they are piled about 18 wide by 25 long by 12 high. Note that these are numbers of bales.

The grab system speeds the handling of the pulp and, of course, makes it possible to store much more in a given floor area. The crane with grab can

Pulp warehouse showing Cleveland Tramrail crane equipped with screw grab.

handle a full car load of pulp into storage in two hours, if the men carting the pulp from a box car can keep up with this pace.

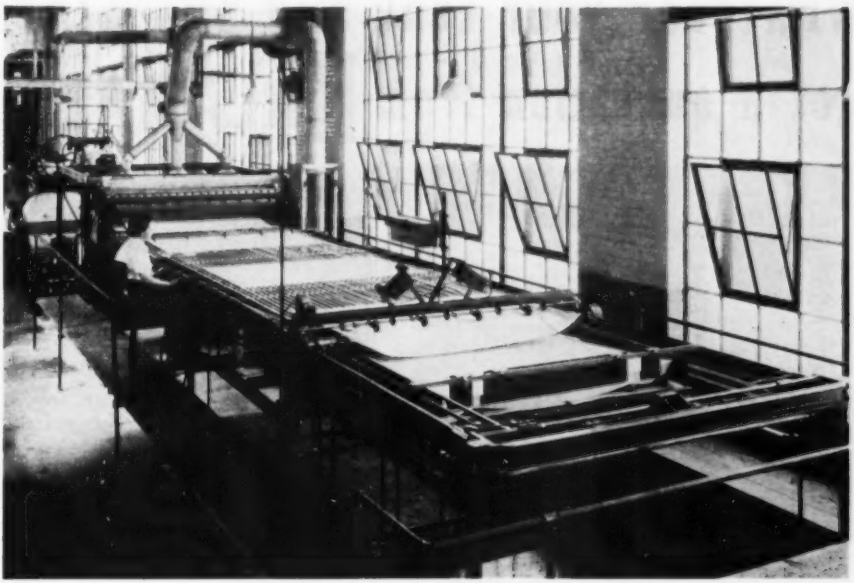
About 25 tons of pulp are taken out



Pulpwood rack car and backboard.

of storage regularly every eight-hour day by use of the crane and grab. The out-going bales are placed on an apron conveyor which takes them through an opening in a side wall and under the machine room, directly to the hydrapulper room. The conveyor is provided with several unusual control features, among which is a photo-electric cell which stops the conveyor when bales are being lowered on it from the storage room. The conveyor, itself, also serves as a storage area for a number of bales.

The screw grab has two motor heads, each of which drives three screws. Two bales are picked up at a time when soda pulp is handled. However, when sulphite pulp, which is much harder, is handled, three bales are picked up at a time, the grab being placed so that two screws are run into each of the bales. A red light at each motor head indicates when the screws are holding the bales firmly in position.



IN OUR opening announcement of New Cutter-Sorter we now Cut, Sort and Count and save all seconds at running speed up to 250 ft. per minute.

Each sheet is stopped before girl to sort. On 2-side sorting we use two girls and special lights, girl sorter looking directly into sheet under side.

Our engineers build this precision unit with same engineering exactness printing press building takes—high speed and good production over the years. Our air stop for each sheet to be scanned by girls, together with special lighting produces easy going sorting with no wounding of sheets. This unit is intended and was designed for finishing rooms who manually inspect each Range of unit is up to 78″ wide rolls and a long grain cut up to 78″. With slitter if wanted.

* * *

OUR SMALLER UNIT is built and designed for mills whose operation is more or less a purely fanning operating with thought in mind to remove any sheets with glaring defects. This is a faster running unit—no attempt is made to save seconds — purely cutting, counting, sorting, with same lighting arrangements. Seconds are discarded into a broke box.

We invite your engineering department to make estimate of economies that can be effected mechanically—two shifts will give a quicker return and more tonnage.

ECONOMIC BREAKDOWN—

Conventional Operation
Cut, Fan and Count Separately

Cutter hours per sorted ream .....
Operator hours per sorted ream .....
Helper hours per sorted ream .....
Fan and Count hours per sorted ream .....
Total hours per sorted ream .....

CUTTER-SORTER OPERATION

Machine hours per sorted ream .....
Helper hours per sorted ream .....
Girl Operator hours per sorted ream .....
Helper hours per sorted ream .....

MAN HOUR Comparison Your Mill—

Conventional operation .....
Milwaukee Cutter-Sorter operation .....
Man hour saving per ton- or reams .....
First shift—
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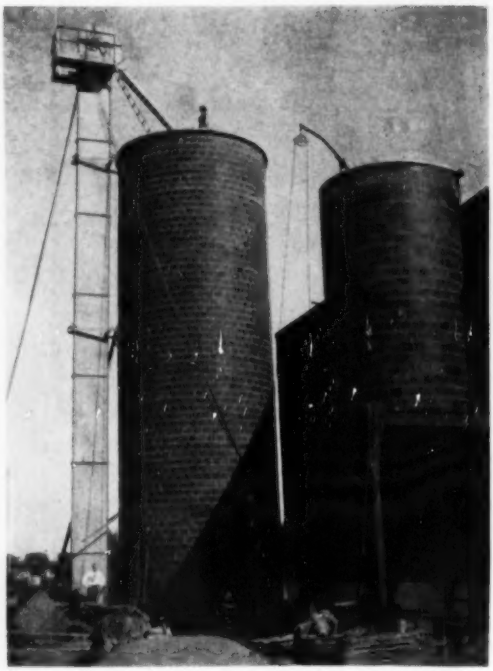
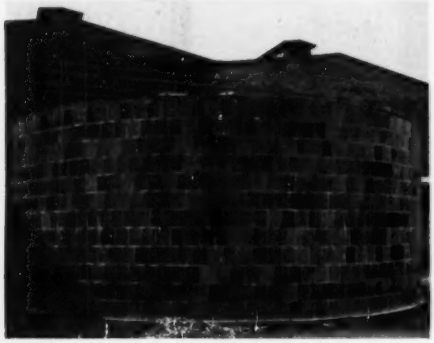


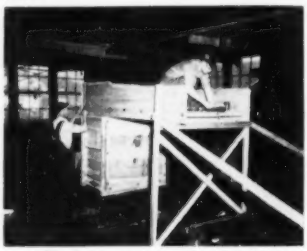
Coal and ash silos nearing completion at Veterans Hospital, Saginaw, Michigan. Glazed tile is ideal for permanent, maintenance-free storage buildings of all kinds.



Settling tank for the water purification system of the Schmidt & Ault Paper Company, York, Pa. This glazed tile tank is 12' high 30' in diameter.

(Above) Exterior view of chest recently completed for one of the large paper mills. Note clean finish.

(Right) Interior view of same horizontal chest, showing propeller agitator. Tile is clean and permanent—yet costs no more.



Workmen putting the finishing touches on wood inlet box for large Southern mill.

Kalamazoo glazed tile tanks, chests, and storage buildings—designed and erected by Kalamazoo experts—are the perfect answer to the specialized building problems of the paper industry. They are clean—and easily kept clean. They rarely require maintenance attention. They outlast any other type of construction—yet cost no more. When you need new construction—particularly where water or chemicals are involved—write for recommendations.

KALAMAZOO TANK and SILO COMPANY

910 Harrison Street, Kalamazoo, Michigan

COMPLETE ENGINEERING AND ERECTION SERVICE

"Let's get together tomorrow and talk over our new line of stationery"

"How's ten o'clock for you? Brown Company's man is due at the office then"

Fine stationery is based on richness of appearance and delicacy of texture. To achieve these finest details, an unusual cellulose fibre is required.

Brown Company's Solka* fibres have been custom built for delicate jobs of this nature.

Assisting in developing paper making techniques to obtain the maximum out of these specialized fibres is an important part of our service. Tremendous raw material sources and over 100 years of practical experience make a difference—as your finished product will show. Brown Company will be happy to serve you from any of the offices below.

BROWN COMPANY

Foremost Producers of Purified Cellulose

Pulp Sales Offices

500 Fifth Avenue, New York 18, N. Y.
465 Congress Street, Portland 3, Maine
110 S. Dearborn Street, Chicago 3, Illinois
58 Sutter Street, San Francisco 4, California
Brown Corporation, 906 Sun Life Bldg., Montreal 2, P. Q., Canada

*®

PRICES . . . . . .

The prices below reflect general market quotations applying to those standard grades in which the normal volume of business is being done.

NEW YORK

Delivered New York

Standard News, per ton—

Rolls, contract	$100.00/	—
Sheets	115.00/	—

F.o.b. Mills, Carload freight allowed, dock N. Y.

Kraft— per cwt., 40# base wgt.

Standard Wrapping Rolls	$6.50/	—
No. 1 Wrapping Rolls	7.25/	—
Standard Bag	6.00/	—

Tissues—per ream 24x36 (480) 10 lbs. 2500 lbs. or more

Wh. No. 1 Frd.	$155.00/	—
Wh. No. 1 M. G.	150.00/	—
Wh. No. 1½	140.00/	—
Wh. No. 2	120.00/	—
Kraft Anti-Tar	1.37½/	—
Shrd. Wh. No. 1 per lb.	.11½/	—

Toilet— per case of 100 rolls—1 M sheets.

Unbleached 4½x4½	$5.75/	—
Bleached 4½x4½	6.95/	—
Bleached 4½x5	8.80/	—

Per Case of 30 rolls—2000 sheets

Unbleached 4½x4½	$5.75/	—
Bleached 4½x4½	6.80/	—

Per Case of 100 rolls—1000 sheets

Facial, 4½ x 5, 2 ply	$8.95/$9.45	

Paper Towels—per case of 3750—Zone 1.

Wh. Jr. M'tif'd 9½x9½	$5.25	
Br. Sr. M'tif'd 10x12	3.60	
Br. Jr. M'tif'd 9½x9¾	3.10	
Br. Jr. Sgl. fold 10x10¾	3.15	
Blchd. 7½ x 11, 24/25 rolls	$3.95/$6.25	

Manila, per cwt.

No. 1 Jute Tag 40 lb., sheets*	$15.05/$17.50	
Reg. Jute M.F. Manila, sheets*	13.50/ 15.50	
Wrapping Manila	8.75/ 10.50	
Printing Manila	10.00/ 11.00	

* Less usual allowance for rolls.

Boards, per ton—

Filled News	$70.00/	—
Plain Chip	70.00/	—
Blchd. Mla. L-d. Chip*	92.50/	—
White Pat. coated*	110.00/	
Kraft Linera 42 lb.	100.00/	
Kraft Corr. .009	105.00/	
Binders Boards	110.00/116.00	

* Base Prices per 10 tons. Less than 10 ton but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

WORLD WOOD PULP MARKETS

Third Quarter Contract Prices, Per Short Air-Dry Ton

	Delivered, with varying freight allowances		On dock Atlantic Ports Full freight allowance		
	U. S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$65.00/ —	$65.00/ —			
Soda, Bleached	113.00/ —	113.00/ —		Competitive	
Sulphate, Bleached	118.00/126.00	126.00/ —	125.00/128.00		
Sulphate, Unbl'd North'n	— / —	82.50/105.00	94.00/ —	with	
Sulphate, Unbl'd South'n	80.00/ —				
Sulphite Blchd. (S'ftw'd)	118.00/ —	118.00/ —	118.00/ —	Domestic	Competitive
Sulphite, Blchd. (H'dw'd)	113.00/ —				
Sulphite, Unbleached	100.00/ —	100.00/ —	100.00/ —	Grades	
Sulphite, Unbl'd (Glassine)	105.00/ —	105.00/ —	104.00/105.00		

Fourth Quarter Prices, Per Short Air-Dry Ton

Sulphate, Blchd.	118.00/126.00	126.00/ —	125.00/128.00	Competitive	
Sulphate, Unbl. Northn.		82.50/ —	85.00/ 94.00	with	
Sulphate, Unbl. Southn.	80.00/ —			Domestic	
Sulphite, Blchd. (Sftwd.)	118.00/ —		118.00/ —	Grades	Competitive
Sulphite, Unblchd.	100.00/ —	100.00 —	100.00/ —		

WASTE PAPER MARKET

Prices to Mills (Per Ton) F.o.b. Cars

	New York Sept. 15	Philadelphia Aug. 16	Boston Sept. 10	Chicago Sept. 1
No. 1 Mixed Paper	$7.00/ $8.00	$5.00/ $6.00	$7.00/ —	$8.00/ —
Boxboard Cuts	7.00/ 8.00	4.00/ 5.00	— / 5.00	11.00/ —
Mill Wrappers	11.00/ 12.00	7.00/ 9.00	— / 9.00	10.00/ —
No. 1 News	10.00/ 11.00	9.00/ 10.00	10.00/ 12.00	15.00/ —
Over-issue News	15.00/ 16.00	12.00/ 14.00	8.00/ 10.50	18.00/ —
Corrugated Containers	17.00/ 20.00	15.00/ 16.00	18.50/ 20.00	20.00/ —
New Corrugated Cuts	18.00/ 20.00	20.00/ 23.00	16.00/ —	23.00/ —
Double Kraft Ld. Corr. Cuts	34.00/ 35.00	30.00/ 35.00	25.00/ —	40.00/ —
Used Kraft Bags	25.00/ 30.00	18.00/ 22.00	25.00/ 30.00	20.00/ —
No. 1 Brown Kraft Paper	25.00/ 30.00	25.00/ 30.00	25.00/ —	20.00/ —
Super Resorted Br. Kraft	25.00/ 30.00	35.00/ —	40.00/ —	35.00/ —
New Br. Kraft Env. Cuts	65.00/ 70.00	60.00/ 65.00	60.00/ 65.00	55.00/ —
New Br. Kraft Cuts	40.00/ 45.00	55.00/ —	45.00/ —	50.00/ —
No. 1 Gdwd. Shvs.	15.00/ 20.00	15.00/ —	25.00/ —	25.00/ —
White Newsblanks	50.00/ 55.00	35.00/ —	— / 50.00	35.00/ —
No. 1 Flyleaf Shvs.	25.00/ 30.00	15.00/ 18.00	35.00/ 45.00	30.00/ —
No. 1 Soft Wht. Shvs.	75.00/ 80.00	60.00/ 65.00	70.00/ 80.00	55.00/ —
Super Soft Wht. Shvs.	90.00/100.00	65.00/ 70.00	80.00/ 90.00	60.00/ —
Hd. Wht. Shvs.	85.00/ 95.00	75.00/ 80.00	80.00/ 90.00	80.00/ —
Hd. Wht. Env. Cuts.	100.00/105.00	90.00/ 95.00	90.00/105.00	90.00/ —
New Manila Env. Cuts.	65.00/ 75.00	60.00/ —	60.00/ 70.00	55.00/ —
Col. Tab Cards	35.00/ 40.00	20.00/ 25.00	35.00/ —	35.00/ —
Manila Tab Cards	65.00/ 75.00	60.00/ 65.00	65.00/ 75.00	60.00/ —
No. 1 Mixed Ledger	30.00/ 35.00	25.00/ 30.00	37.50/ —	35.00/ —
White Ledger	45.00/ 55.00	35.00/ 45.00	50.00/ 60.00	45.00/ —
Mixed Books & Mags.	7.00/ 8.00	4.00/ 5.00	12.00/ —	7.00/ —
No. 1 Rep'd Hvy. Books & Mags.	20.00/ 25.00	8.00/ 10.00	22.00/ 23.00	20.00/ —

The following prices are representative of distributors' resale prices, all deliveries in Zone 1.

Rag Content Bonds and Ledgers—

White, 20 lb.

Bonds

	4 Ctns. per cwt.
100% Rag Ex. No. 1	$51.40/$53.90
100% Rag	44.55/ 46.15
75% Rag	33.90/ 35.40
50% Rag	28.10/ 29.55
25% Rag	24.85/ 26.80

Ledgers

	4 Ctns. per cwt.
100% Rag Ex. No. 1	$52.65/$54.55
100% Rag	45.65/ 46.40
75% Rag	35.15/ 36.10
50% Rag	29.40/ 30.05
25% Rag	26.15/ 26.80

Sulphite Bonds and Ledgers

White, 20 lb.

Bonds

	4 Ctns. per cwt.
No. 1	$17.50/ —
No. 2	16.65/ 16.75
No. 4	15.60/ 15.95

Ledgers

	4 Ctns. per cwt.
No. 1	$18.80/ —
No. 2	18.05/ —

White Book

	Case per cwt.
Conversion Coated	
No. 1	$19.75/$20.90
No. 2	19.25/ 19.65
No. 3	17.75/ 18.90
Machine Coated	
No. 1	16.40/ 16.65
No. 2	14.90/ 15.15
Uncoated	
No. 1 Antique (Watermarked)	16.40/ 17.90
Offset	15.15/ 16.65
A Grade E. F.	15.40/ —
A Grade S. C.	15.90/ 16.15
B Grade E. F.	14.90/ 15.15
B Grade S. C.	15.40/ 15.65

Twines

All Prices Nominal, F.o.b. Mill

(Soft Fiber)	
Coarse Polished—India	.35½/ .36½
Fine Polished India	.41½/ .43
Unpolished—Paper Makers	.32¾/ .34½
Tube Rope	.33¾/ .35½
Wrapping	.36 / .38
Cotton	.58 / .60
Polished Cotton	.55 / —
(Hard Fiber)	
Mex. Sisal	.21 / .27
(American Hemp)	
Polished Hemp	.45 / .48
Unpolished	.35 / .37

Rag Market

New Domestic Cotton Cuttings

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.	
White Shirt	$10.00/	$10.50
Unbleached Muslin	10.00/	10.50
Light Silesias	7.00/	7.50
White Back Blue Overalls	6.25/	6.50
Blue Overalls	6.00/	6.25
Fancy Shirt	4.50/	5.00
Percales	5.50/	6.00
Light Prints	5.50/	6.00
No. 1 Washables	2.75/	3.00
Bleachable Khaki	5.00/	5.50
Unbleachable Khaki	4.50/	5.00
Cottonades	4.25/	4.75
Lt. Flannelettes	7.00/	7.50
Men's Corduroy	3.50/	4.00
Women's Corduroy	3.00/	3.50

Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.	
No. 1 Whites, Repacked	$4.25/	$4.75
No. 1 Whites, Miscellaneous	3.50/	4.00
No. 2 Whites, Repacked	2.75/	3.00

Can you think of any more markets for softer paper products {made like this} ?

You get better softening plus fire resistance in one low-cost treatment with Du Pont Sulfamic Acid

Here are just a few of the uses for softened paper and paper products which you can make *better* and *more economically* with Du Pont Sulfamic Acid. Just add Sulfamic Acid to the desired amine to get an Amine Sulfamate that softens your paper and also makes it fire-resistant—with a single treatment.

BETTER SOFTENING is assured—even at low humidities—because Amine Sulfamates are more effective over the whole humidity range . . . do not depend entirely on water pick-up.

RETAINS SOFTNESS! Paper softened with an Amine Sulfamate will not lose its softness—even after long periods of normal use. And it can be readily printed or glued. It can also be given *extreme* resistance to yellowing with a single modification of the Amine Sulfamate.

LOW-COST . . . EASILY APPLIED! Du Pont Sulfamic Acid is inexpensive, and added to amines, can be economically and uniformly applied from aqueous solutions by immersion or spray.

Where fire resistance without softening is required, the regular Du Pont Fire Retardants are recommended.

DU PONT TECHNICAL ASSISTANCE is available to help you take advantage of this new development. Just clip the coupon for our samples and technical bulletin on Sulfamic Acid.

DU PONT
REG. U.S. PAT. OFF.

SULFAMIC ACID

*The basic material in making Amine Sulfamates

BETTER THINGS FOR BETTER LIVING. . . THROUGH CHEMISTRY

E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Dept., Room 4069 B
Du Pont Bldg., Wilmington 98, Delaware

Please send me Technical Bulletin on Sulfamic Acid.

Name_____ Title_____

Company_____

Address_____

City_____ State_____

No. 2 Whites, Miscellaneous	2.00/	2.25
Cotton Pants & Overalls	2.50/	2.75
Thirds and Blues, Repacked	2.00/	2.25
No. 1 Roofing Rags	1.25/	1.35
No. 2 Roofing Rags	1.15/	1.25
No. 3 Jute Bagging	1.05/	1.10
No. 4 Brussels & hrd. Bck'd crpts.	.90/	1.00
Roofing Bagging	.80/	.95

New Foreign Cotton Cuttings

(Prices to Dealer, F.o.b. Dock, N. Y.)

	Per 100 lbs.
New Dark Cuttings	
New Mixed Cuttings	
Light Silesias	prices
Light Flannelettes	are
New White Cuttings	
New Unbleached Cuttings	nominal
Fancy Shirt Cuttings	
Light Prints	
Bleachable Khaki, No. 1	
Unbl. Khaki, No. 1	

Old Foreign Rags

(Prices to Dealer, F.o.b. Dock, N. Y.)

	Per 100 lbs.
No. 1 White Cottons	
No. 2 White Cottons	
No. 3 White Cottons	
No. 4 White Cottons	prices
Extra Light Prints	
Old Light Prints	are
Med. Light Prints	
Dutch Blue Cottons	
Checks and Blues	
Linsey Garments	nominal
Dark Cottons, European	
Dark Cottons, Egyptian	
Old Shopperies	
New Shopperies	

Bagging

(Prices to Dealers, f.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny, No. 1	$6.75/ $7.00
Domestic Gunny, No. 1	6.75/ 7.00
Heavy Wool Tares	6.50/ 7.00
No. 1 Scrap Bagging	4.75/ 5.00
Foreign Manila Rope	5.00/ 5.25
Domestic Manila Rope	5.00/ 5.25
Jute Strings	5.50/ 5.75
No. 1 Sisal Strings	4.50/ 4.75
Mixed Strings	1.15/ 1.30

PHILADELPHIA

New Domestic Cotton Cuttings

(Prices to Dealers, F.o.b. East'n Ship. Pt.)

	Per 100 lbs.
White Shirt	$10.00/$10.50
Fancy Shirts	4.50/ 5.00
Light Silesias	6.50/ 7.00
Unbleached Muslin	9.75/ 10.25
Light Prints	5.25/ 5.75
Washable No. 1	2.50/ 3.00
Blue Overall	5.75/ 6.25
Percales	5.50/ 6.00
Bleachable Khaki	4.50/ 5.00
Unbleachable Khaki	3.25/ 3.75
Men's Corduroy	3.75/ 4.25
Ladies' Corduroy	3.25/ 3.75
Cottonades	4.00/ 4.50

Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. East'n Ship. Pt.)

	Per 100 lbs.
Mixed White	$3.00/ $3.50
Thirds and Blues Repacked	2.25/ 2.50
Cotton Pants & Overalls	2.25/ 2.50
No. 1 Roofing Stock	1.20/ 1.30
No. 2 Roofing Stock	1.10/ 1.15
Roofing Bagging	.90/ 1.00

Bagging

(Prices to Dealers, F.o.b. East'n Ship. Pt.)

	Per 100 lbs.
Old Manila Rope	$5.00/ $5.25
Foreign Gunny No. 1	6.75/ 7.00
Domestic Gunny, No. 1	6.75/ 7.00
Sisal Strings No. 1	3.00/ 3.50
No. 1 Scrap	4.00/ 4.50
No. 1 Jute Rope	5.50/ 6.00

BOSTON

Bagging

(F.o.b. Boston)

	Per 100 lbs.
Foreign Gunny	$6.50 / $7.00
Domestic Gunny	6.50 / 7.00
Domestic No. 1 Old Rope	5.00 / 5.25
Foreign No. 1 Old Rope	5.00 / 5.25
Mixed Strings	1.35 / —
Transmission Rope—Domestic	3.00 / 3.50
Jute Carpet Threads	— / 4.00
Bleachery Burlap	— / 9.00
Scrap Burlap—	
Foreign	5.00 / 5.25
Domestic	5.50 / 6.00
South America	8.00 / 8.50
Austr. Wool Pouches	8.25 / 8.75
New Zealand Wool Pouches	— / 6.00
New Burlap Cuttings	7.50 / 8.00
Heavy Baling Bagging	7.50 / 8.00
Paper Mill Bagging	— / 5.00

Domestic Rags (new)

(F.o.b. Boston)

	Per 100 lbs.
New Light Prints	$.75 / 6.00
Fancy Percales	6.25 / 6.50
White No. 1 Shirt	10.00 /10.75
Light Flannelettes	— / 7.00
Canton Flannels, Bleached	— / 9.00
Underwear Cutters, Bleached	10.75 /11.25
Underwear Cutters, Unbleached	10.00 /10.25
Blue Overalls	6.00 / 6.50
Soft Unbleached	9.75 /10.50
Blue Cheviots	6.00 / 6.50
Fancy Shirt	4.00 / 4.50
Washable	3.00 / 3.25
Khaki Cuttings	5.00 / 5.25
Men's Corduroy	4.50 / 5.00
Khaki Canvas	— / 5.50
B. V. D. Cuttings	10.00 /10.25

Domestic Rags (old)

(F.o.b. Boston)

	Per 100 lbs.
No. 1 Whites, Repacked	3.00 / 3.50
No. 1 Whites, Miscellaneous	2.50 / 3.00
Twos and Blues, Repacked	— / 2.00
Cotton Pants & Overalls	2.50 / 2.75
No. 1 Roofing Stock	.95 / 1.10
No. 2 Roofing Stock	.85 / 1.00
Roofing Bagging	.75 / .80

MATERIALS

Blanc Fixe

Prices firm. Supply adequate. Heavy demand. Currently quoted at $85.00 in bags, car lots, at works, 6 cents per pound, l.c.l., deld. By-product supply somewhat restricted. Quoted at $77.50 per ton, car lots, at works, 6 cents per pound, l.c.l., deld.

Bleaching Powder

Demand improved. Prices steady. Prices range from $4.25 to $4.75 per 100 pound drums, l.c.l., works.

Casein

Notable increase in demand temporarily firms Argentine prices. European inquiry strong. Little domestic available. Current prices on processed acid precipitated grades 21½ to 22½ cents, imported grades 19 to 20 cents, f.o.b. shipping point, car lots.

Caustic Soda

Demand heavier. Stocks ample for prompt shipment. Prices firm. L.c.l. sales reported at competitive levels. Solid caustic is reported at $3.05 per cwt. flaked and ground is quoted at $3.45 per cwt., in 400 pound drums, $3.95 per cwt. in 100 pound drums—car lots at works; liquid 50 percent in tank cars at $2.40 per cwt.; liquid 73 percent in tank cars at $2.50 per cwt., at works.

China Clay

Demand strong. Prices firm. Supply of domestic and imported ample. Domestic filler quoted at $10 to $12.50 per ton, car lots, f.o.b. mines. Coating clay is $15 to $25. Imported clay quotation, short tons, $16 to $35, export warehouse.

Chlorine

Demand strong. Supply condition tightened by cutback in caustic soda production. Prices firm. Currently quoted at $2.40 per cwt. in single unit tank cars; at $2.70 to $3.90 per cwt. in multi-tank cars, f.o.b., works.

Rosin

Export orders brighten market tone. Market active. Less going into loan. Gum rosin in drums per 100 pounds net in car lots, f.o.b. Savannah, B, $5.75; G, H, $6.62; I, K, $6.79; wood rosin, per 100 lbs., car lots f.o.b. Savannah; B, $4.25; FF, $5.50.

Rosin Size

Demand steady. Supply good. Seventy percent gum and pale wood grades, tank cars, $5.45 to $5.55 f.o.b. southern shipping point.

Salt Cake

Demand fair. Domestic quoted at $22.00/$24.00, f.o.b. shipping point, freight allowed to destination.

Soda Ash

Demand gains. Supply easy. Prices firm. Current prices, car lots per 100 pounds; in bulk, $1.15; in paper bags, $1.40; and in barrels, $1.90.

Starch, Corn

Prices guaranteed at Sept. 15 levels until Oct. 1.Demand strong. Supply ample. Pearl grade currently quoted at $4.82 per 100 pounds; powdered starch at $4.93 per 100 pounds; white corn dextrine at $5.17 per 100 pounds; car lots, f.o.b. Chicago.

Starch, Potato

Stronger paper and textile demand. Supply tight. Market firm. Prices stronger. Idaho quantities limited to warehouse. High grade quoted at $7.00 cwt., l.c.l., ex N. Y. whse. New production makes a start. Orders accepted for October delivery at $5.00 cwt., f.o.b. shipping point. Maine supply quoted $4.90/$5.00, f.o.b. Maine warehouse.

Sulphate of Alumina

Demand steady. Prices firm. Supply good. The commercial grades are quoted from $1.50 per 100 pounds, in bags, car lots, f.o.b. works. Iron free is $2.50 per 100 pounds in bags, car lots, at works.

Sulphur

Supply ample. Demand sustained at good level. Prices firm. Annual contracts are quoted at $18 per long ton, f.o.b. mines; $19.50, f.o.b. vessels, Gulf ports. Export price f.o.b. Gulf ports is $22.00 per long ton.

Talc

Demand continues far ahead of supply. Prices steady. Domestic grades are currently quoted at $23 to $28 per ton in 50-lb. paper sacks, car lots, f.o.b. mills; Canadian at $35 and up per ton.

Tapioca Flour

Supply liberal. Moderate demand. Dextrinizable grades range from $9.25/$9.50 cwt.; high viscosity, Southern B grades $8.50/$8.75 cwt., on dock Atlantic and Gulf ports. Northern refined grades range from $7.00/$7.25 cwt. on dock, N. Y., and are tight in supply, prices firm.

Titanium Dioxide

Demand picks up. Supply ample. Prices firm. Anastase 19½c pound carload lots, 20c l.c.l., rutile, 21½c pound carload lots, 22½c l.c.l.; 50-pound bags, f.o.b. plant, actual freight allowed.

FOREIGN

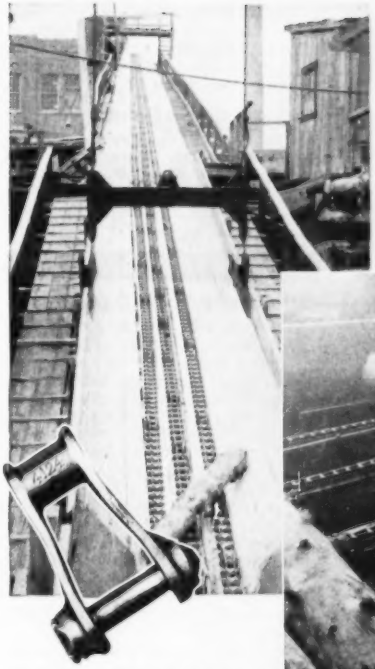
Australia

The total imports of reel newsprint into Australia during May were 9,697 tons, compared with April's 11,291 tons and the 12,742 tons of March. Sheet newsprint imported totalled 615 tons.

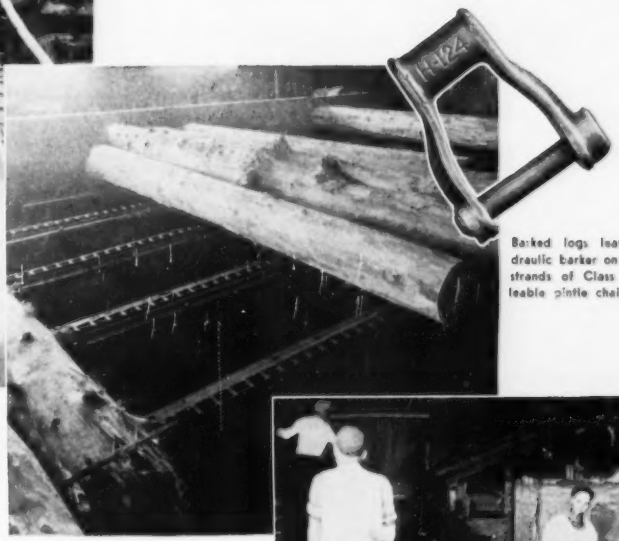
Other printing paper imports during May were: (all in hundredweights of 112 pounds)—Antique printing, 103 (all from U.K.); imitation art, 467 (U.K. 321, Sweden 146); machine processed coated, 280 (all U.K.); other coated printings, 656 (U.K. 634, Netherlands 22); monotype, 55 (all U.K.); offset embossed, 43 (all U.K.); other offset, 479 (Sweden 316, U.K. 119, Norway 44); lithographic machine glazed, 682 (all U. K.); other machine glazed, 9,459 (Norway 5,567, U.K. 3,359, Sweden 390, Finland 143); esparto one side supercalendered, 310 (all U.K.); other one side supercalendered, 3,234 (Indonesia 1,989, U.K. 670, Finland 480, Sweden 95); two sided supercalendered, 737 (U.K. 599, Norway 138); machine finished, 682 (U.K. 469, Finland 213); magazine,

LINK-BELT CHAINS

for Superior Service in pulpwood log handling



From boat to woodroom, logs are carried by #4124 pintle chain of Promal, the stronger, longer-wearing metal.



Barked logs leaving hydraulic barker on multiple strands of Class H malleable pintle chain.

Nine strands of Class C combination chain of malleable iron and steel, form this sorting conveyor taking logs from barking drums to chipper, or to groundwood log storage on upper floor.

Pulp and paper mills interested in efficient operation and low overall costs find that Link-Belt chains and sprockets for drives and conveyors give them these qualities in extra measure. From the various Link-Belt types, with numerous variations as to size and attachments, can be supplied a chain precisely suited to each application. Link-Belt's long experience and unmatched facilities assure you superior performance and long life on any installation.

Consult Link-Belt on conveying, materials handling and power transmission problems.

11,596

LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices, Factory Branch Stores and Distributors in Principal Cities.

LINK-BELT
CHAINS AND SPROCKETS
for conveyors • for drives • for power transmission

34,706 (Finland 20,398, U.K. 11,278, Norway 2,573, Sweden 442, U.S.A. 15); glazed imitation parchment, 1,161 (Norway 774, Sweden 195, Finland 192); and other various printing papers, 1,576 (Finland 986, U.K. 511, Norway 79). It will be noted that the total imports of printing papers from the United States were only 15 hundredweights, valued at £50.

* * *

Newspaper News (Sydney) states: "In line with dollar decisions at the London conference, it is believed that no licenses for the import of Canadian (including Newfoundland) newsprint will be granted for 1950, but that licences already granted for the import of 35,000 tons Canadian this year and 5,000 tons in the first half of 1950 will not be cancelled. Australian individual ten year newsprint contracts with Canadian mills would then necessarily be suspended . . . Publishers in Australia generally view the position without anxiety. It has been estimated that at the end of this year many Australian newspapers will have six months stocks in hand and that, assuming the exclusion of Canadian print, her newsprint requirements from sterling sources will range up to 114,000 tons. But there is a strong feeling in Australia that much cheaper newsprint is an economic necessity and it is hoped that the British Board of Trade and the British mills will encourage this happier condition."

It is pointed out here that Australian newsprint users unwittingly misled the British Board of Trade and British mills when estimating current requirements. Sir Lloyd Dumas, chairman of Advertiser Newspapers, Ltd., Adelaide, says: "Australia was found to have overstated her requirements because of four principal reasons: (1) Advertising was coming forward in much lower volume than was anticipated; (2) There had been a large switch over from newsprint to magazine printings—something like 15,000 tons a year; (3) We had assumed in our calculations that publishers would continue to plan a six months stock. A survey showed the general view to be that five and a half month's stock or less would be sufficient because of the high cost of carrying stocks at to-day's prices; (4) Stocks in Australia were 12,000 tons higher than the figure included in the earlier calculations."

* * *

Registered recently: H. E. Castree, manufacturer of paper novelties; factory, 433-5 Spencer Street, Melbourne.

* * *

Australian Paper Manufacturers, Ltd., proposes to establish a cardboard mill costing at least £1,000,000 at Petrie, 15 miles north of Brisbane. Announcing this, managing director C. S. Booth said that the first unit would manufacture initially 15,000 tons of cardboards of various grades yearly and would be capable of expansion to 25,000 tons. Two senior members of the firm have gone to England to settle the final specification of the cardboard machine which is to be built by Walmsley's (Bury), Ltd. Mr. Booth added that it might take three years before the wheels of the factory started turning, and it would be at least six months before any major activity commenced on the site. The cardboard machine itself would represent only about 20 percent of the total cost of establishing the mill. Production in the first instance, we understand, will be concerned with cardboards suitable for the manufacture of solid and corrugated containers, box boards and similar products. Permanent mill employees are expected to number about 250.

* * *

Edwards Dunlop & Co., Ltd., paper merchant, has been appointed representative in Australia and New Zealand of Albert E. Reed & Co., Ltd., newsprint mills, Aylesford, England. David Bune, mill representative, is expected to visit Australia again early next year.

* * *

The South Australian government statistician, (A. W. Bowden) reports that imports of paper and pulp into that State during the month of July totalled a value of £20,352 compared with the £60,408 of July last year.

* * *

Carl Schroder, head of one of Sweden's principal paper exporting firms, has been visiting Australia. He is returning to Sweden via India.

Ireland

DUBLIN—The Report of the Revenue Commissioners in the Republic of Ireland for the year ended March 31, 1949, shows that no customs duties were received in respect of cardboard boxes. Customs duties on advertising cards, etc., amounted to £8,327, and on cardboard cases, £7,488. Cardboard discs brought in £260, and cardboard, in the piece, £2. Customs duty on unprinted paper brought in £57,963 and on wall and ceiling paper, £17,232.

* * *

The Government of the Republic of Ireland have made an Order under which the Customs duties chargeable on imported wall and ceiling papers have been increased. The new rates are: *Full rate*, 20 percent ad valorem or 3¾d., per linear yard, whichever is greater. *Preferential rate* (applicable to goods originating in Great Britain and Northern Ireland or Canada), ten percent or 2½d., per linear yard, whichever is greater.

Additional duty at the flat rate of five percent ad valorem will continue to be chargeable on printed wallpaper.

Recent heavy imports of wallpaper have threatened employment in the Irish factories. The specific rates formerly operative (1½d., per linear yard, full, and 1d., per linear yard, preferential), were, because of the substantial rise in price of wall paper since before the war, no longer sufficient to afford a reasonable measure of protection to the Irish manufacturers.

Lebanon Seeking Pulp

OTTAWA—One of his main jobs in Canada would be to stimulate trade between his country and Canada, with pulp being one of the principal products sought by his country, although he hoped for expansion of trade negotiations in other directions, declared Nadim Dimechkie, newly-appointed Consul-General of Lebanon to Canada, upon his arrival here.

Israel Issues Import Permits

NEW YORK—The Israel Corp. of America stated on September 9 that the Israeli government has issued $3,000,000 of import permits for goods from the United States including newsprint, $500,000.

TRAFFIC

NMF Classification 10, Supp. 2

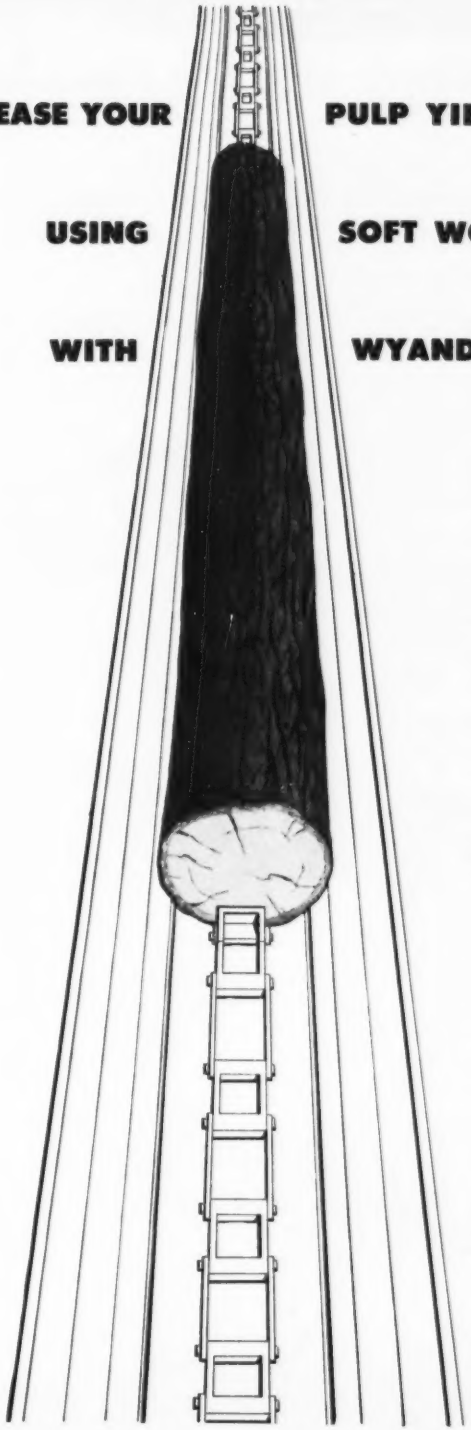
Provision will be made in the National Motor Freight Classification No. 10, Supplement 2, effective 30, for *paper insulating material* consisting of two or more sheets held together by a waterproofing compound reinforced between the sheets with strands of fibre and backed or faced with aluminum pigment coated paper, shipped in wrapped rolls. The item is new, with less-than-truckloads rating Class 3 (70 percent of the first class rate); on truckloads, the ratings are Class 5 (35 percent) in the East and West; in the South, Class 37½ (37½ percent). The required minimum weight for truckloads 24,000 pounds.

Another new item, also in Supplement 2, related to paper articles are shipments of paper curtains or draperies, treated, printed, or plasicized, cut and glued or sewn, in boxes. The ratings are Class 2 (85 percent) for less-than-truckload; Class F (55 percent) in the East, Class 4 (50 percent) in the South and West, on truckloads with the required minimum weight of 30,000 pounds.

In PAPER TRADE JOURNAL, July 7, page 44 the report was made concerning proposed induction of a new rule (No. 35) in the National Motor Freight Classification. The rule received objections from shippers and consignees in public hearings held in Chicago, Washington and Atlanta. After consideration by the National Classification Board it has been decided to drop the proposed rule. Even the carriers failed to support the induction of the rule into the Classification. The opposition was based in the fact that the rule required shippers and receivers to load and unload truckload shipments. The Board's decision has only a limited application and while the rule will not be in the Classification, yet on the other hand there are several thousand individual truckers who have the same rule in their tariffs.

It might be advisable for paper firms to check those tariffs they have on file, as truckers have been using the rule since last January.

INCREASE YOUR PULP YIELD, USING SOFT WOODS, WITH WYANDOTTE SODA ASH



By using the semi-chemical pulping process — with Wyandotte Soda Ash — you can widen your selection of pulp woods and reduce your pulp losses in processing.

This process was developed by Forest Products Laboratory to make available soft woods for pulp production.
In the semi-chemical process, the wood is cooked in a sodium sulfite solution, then treated with up to 15% chlorine (for further delignification) and bleached with 1 to 1½% available chlorine.

One producer reports that the process results in a pulp yield of 56 to 58% — about 10 to 12% higher than the normal sulfite yield.

If you are considering the semi-chemical pulping process, why not get in touch with Wyandotte Chemicals Corporation?
As one of the world's oldest and largest producers of Soda Ash, Wyandotte is in a good position to furnish you with prompt, dependable deliveries of this basic chemical.

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Wyandotte, Michigan • Offices in Principal Cities

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CALCIUM CARBONATE • CALCIUM CHLORIDE
CHLORINE • HYDROGEN • DRY ICE
SYNTHETIC DETERGENTS • GLYCOLS
CARBOSE (Sodium CMC) • ETHYLENE DICHLORIDE
PROPYLENE DICHLORIDE • CHLOROETHERS
AROMATIC SULFONIC ACID DERIVATIVES
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FINANCIAL RECORD

PREFERRED STOCKS	Per Share Earnings: Calendar Year 1948	Per Share Earnings: 12 Mo. to Approx. 6/30/49	Indic. Annual Divid. Rate	Sept. 20 Approx. Market Price
Armstrong Cork Co. $3.75 Cum.	$46.33*	$38.47*	$3.75	$98¾
Armstrong Cork Co. $4.00 Cum. Conv.	46.33*	38.47*	4.00	108¼
Celotex Corp. 5% Cum.	26.42c	10.33p	1.00	16½
Champion Paper & Fibre $4.50 Cum.	99.97f	19.91r	4.50	96⅛
Container Corp. of Amer. 4% Cum.	105.41	99.87	4.00	100⅝
Crown Zellerbach $4.20 Cum.	61.84i	61.00p	4.20	100¾
Crown Zellerbach $4.00 Cum. Conv. 2nd	58.51i*	57.90p*	4.00	95¾
Dixie Cup Co. $2.50 Cum. Conv. Cl. A	10.10	10.04	2.50	49¾
Flintkote Co. $4 Cum.	83.25	66.07	4.00	103
Robert Gair Co., Inc. 6% Cum.	17.08	13.73	1.20	16¼
International Paper Co. $4 Cum.	263.00	254.71	4.00	102¾
Johns-Manville $3.50 Cum.	209.89	212.03	3.50	110¾
Kimberly Clark Corp. 4½% Cum.	80.74	74.36	4.50	101⅜
Kimberly Clark Corp. 4% Cum. Conv. 2nd	41.59*	44.25*	4.00	99⅝
MacAndrews & Forbes 6% Cum.	62.23	58.66	6.00	133½
Mead Corp. 4½% Cum.	73.46	68.78k	4.25	90½
Mead Corp. 4% Cum. Conv. 2nd	29.91*	24.30k*	2.00	31⅛
Paraffine Cos. Inc. 4% Cum. Conv.	156.11	136.31	4.00	103
Rayonier Inc. $2 Cum.	16.43	13.99	2.00	31¼
St. Regis Paper Co. 4.40% 1st A	79.90	51.11	4.40	82½
Scott Paper Co. $3.40 Cum.	59.06	55.14	3.40	93¾
U. S. Gypsum Co. 7% Cum.	314.45	296.82	7.00	184½
United Wallpaper Inc. 4% Cum. Conv.	(d)0.79	20.50	2.00	24¾
West Virginia Pulp & Paper 4½% Cum.	79.45c	69.93p	4.50	108¼
COMMON STOCKS				
APW Products Co.	$0.73	(d)$0.56	(m)	2⅝
American Writing Paper Corp.	(d)0.15	(d)0.16	$0.25	6⅛
Armstrong Cork Co.	7.54	6.13	3.00	47½
Celotex Corp.	7.21c	2.75p	1.00	16
Certain-Teed Prods. Corp.	4.02	3.21	1.00	12¼
Champion Paper & Fibre	8.70f	1.70r	2.00	24
Congoleum Nairn Co.	5.78	4.92	2.25	27⅜
Container Corp. of America	10.12	9.52	4.50	36
Crown Zellerbach	6.70e	6.68p	2.00	25¼
Dixie Cup Co.	6.70	6.65	1.00	28⅝
Eastern Corp.	4.76	1.27	(h)	8⅞
Flintkote Co.	5.86	4.40	2.50	26½
Robert Gair Co., Inc.	2.67	2.10	0.70	6⅝
Great Northern Paper Co.	4.63	5.32	2.80	39⅞
International Paper Co.	16.73	16.19	5.00	54⅞
Johns-Manville Corp.	5.22	5.27	2.00	39
Kimberly Clark Corp.	5.02	4.55	1.65	21⅝
MacAndrews & Forbes Co.	3.68	3.56	2.50	35½
Marathon Corp.	4.11c	3.42	1.40	20⅜
Mead Corp.	6.36	5.84k	1.00	12⅞
National Container Corp.	2.28	1.38	0.40	6½
Paraffine Cos. Inc.	2.45	2.14	1.20	18¼
Rayonier, Inc.	9.09	7.55	2.00	24⅝
Ruberoid Co.	11.80	9.48	3.25	49⅛
St. Regis Paper Co.	2.71	1.64	0.60	7⅛
Scott Paper Co.	4.15	5.02	2.50	60¼
Sutherland Paper Co.	6.02	4.92	2.50	35
Union Bag & Paper Corp.	9.17	6.50	3.00	25
United Board & Carton	2.04b	(d)1.49s	(e)	5¾
U. S. Gypsum Co.	15.04	14.18	6.00	95¼
United Wallpaper	(d)0.10	0.59	(n)	3⅜
West Virginia Pulp & Paper	11.33c	9.70p	4.00	41⅜

(a) 12 months to approximately 3/31/49
(b) Year ended 11/23/48
(c) Year ended 10/31/48
(d) Deficit
(e) Omitted dividend 2/4/49
(f) 11 months to 3/31/49
(g) 12 months to approximately 1/31/49
(h) Directors took no action on 8/2/49 dividend—last payment 5/2/49
(i) 12 months to approximately 4/30/49
(j) 8 months to 12/31/48
(k) 12 months to approximately 6/12/49
(m) Directors took no action on July, 1949, dividend—last payment 1/10/49
(n) Last payment 25c, 9/16/47
(p) 12 months to approximately 7/31/49
(r) 3 months to 6/30/49
(s) 12 months to 5/31/49

(*) Earnings per combined preferred shares.

Eastern Wins Change of Venue

Baltimore-Eastern States Corp., on September 16 lost its plea for immediate lifting of an injunction brought against it by a dissatisfied shareholder. The corporation, however, was successful in its effort to get the matter transferred to the Federal District Court of Maryland from the state court which issued the original injunction on September 9.

The state court writ upholds a plan by which Eastern States offers to redeem its preferred stock with shares of common stock it owns in the St. Regis Paper Co. (See PAPER TRADE JOURNAL, September 8 issue, page 42).

ONLY UNI-PULL GIVES YOU THESE TWO DRIVE LIFE-GUARDS

Here's compact, waterproofed power-transmission with built-in protection for belt and bearings.

It's the new, Uni-Pull drive—the only belt drive that gives you these trouble-reducing features.

1. UNIFORM PULL ACROSS THE PULLEYS . . . LONGER BELT LIFE—The waterproofed, flat leather belt is self-protected by the fact that it pulls as a unit. There are no separate tensions which can become uneven and cause excessive wear. There's just *one* belt, *one* pulley grip, *one* even tension across the pulley face.

2. UNIFORM PULL AROUND THE PULLEYS . . . LONGER BEARING LIFE—The tension-control motor base automatically keeps the belt at the proper tension despite changes in load. It gives you smooth, even, bearing-saving power over very short centers.

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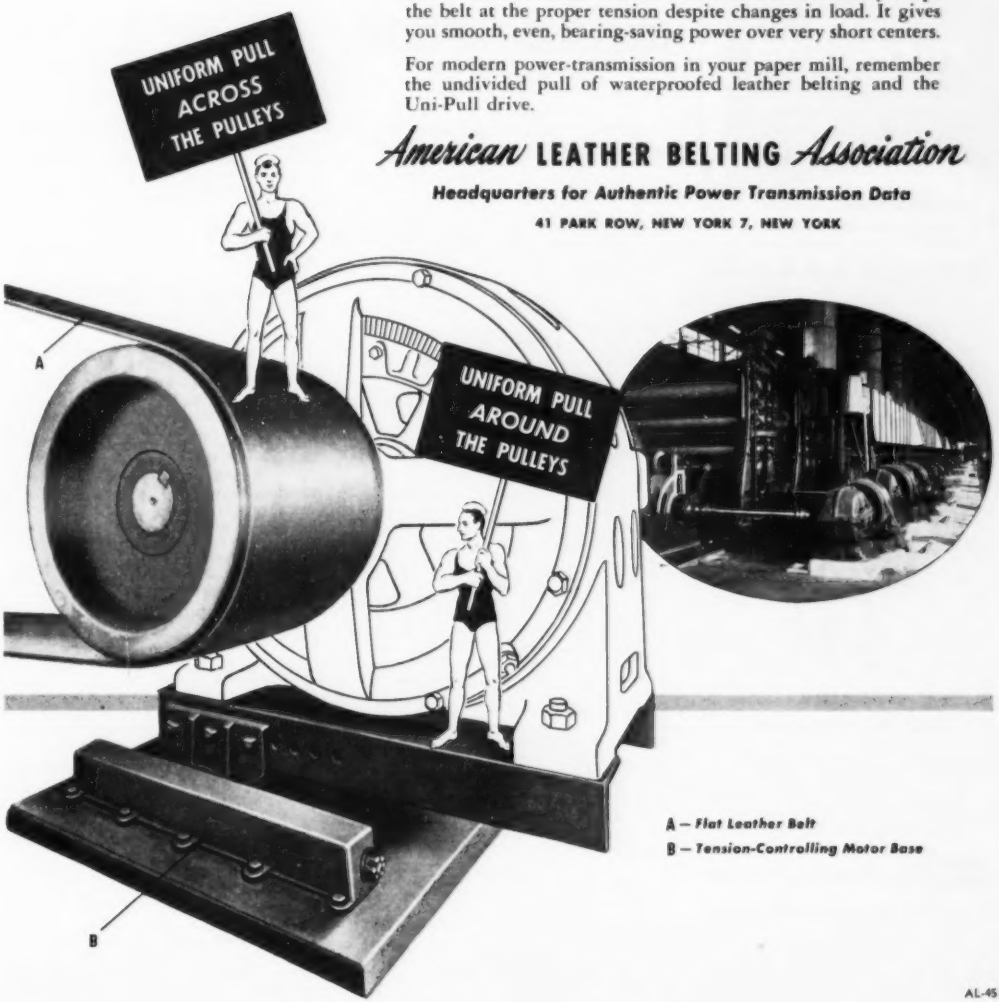

A — Flat Leather Belt

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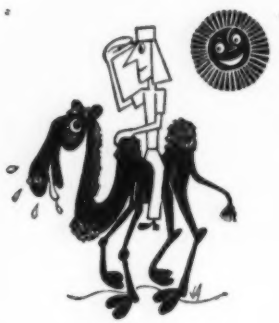

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Pulp and Paper Co. Earnings

Pulp and paper companies	*1949*	*1948*
Union Bag & Paper Corp.	$3,258,016	$7,273,367
Great Northern Paper Co. and wholly owned subsidiaries	2,851,845	2,165,012
Scott Paper Co.	2,519,542	1,743,592
Minnesota and Ontario Paper Co.	1,735,525	3,060,375
Southern Advance Bag & Paper Co. and wholly owned subsidiaries	1,031,923	2,034,622
Puget Sound Pulp & Timber Co.	867,142	3,213,642
Sutherland Paper Co.	855,847	1,101,698
Oxford Paper Co.	805,961	808,932
Great Lakes Paper Co., Ltd.	741,917	1,055,833
Donnacona Paper Co.	582,187	665,088
Nekoosa-Edwards Paper Co.	564,609	1,572,783
Brompton Pulp and Paper Co., Ltd.	397,525	899,081
Whitaker Paper Co.	326,243	484,687
Sorg Paper Co.	—166,287*	547,894

* Net loss.
Source: *Printer's Ink.*

IMPORTS — EXPORTS

IMPORTS AT NEW YORK

Week Ending Sept. 17

Newsprint

R. A. Olsen, G.T.D., Donnacona, 358 rolls.
Montmorency Paper Co., Gudvor, Botwood, 1062 rolls.
News Syndicate Co., Nyhorn, Baie Comeau, 5890 rolls.
R. A. Olsen, G.T.D., Donnacona, 383 rolls.
News Syndicate Co., Ted, Thorold, 1523 rolls.
R. A. Olsen, Donpaco, Donnacona, 360 rolls.
News Syndicate Co., A.C.D., Donnacona, 185 tons.
R. A. Olsen, G.T.D., Donnacona, 325 rolls.
News Syndicate Co., Evanthia, Baie Comeau, 4600 tons.

Photo Paper

J. J. Gavin & Co., Queen Mary, Southampton, 2 cs. (unsensitized).

Serviettes

(———), Media, Liverpool, 10 crates.
A.C.O. Leather Goods Co., American Scientist, Hamburg, 48 bls.

Wallpaper

C. A. Haynes & Co., Media, Liverpool, 31 ctns.
Hudson Shipping Co., American Leader, Havre, 8 pkgs.
Hudson Shipping Co., American Scientist, Havre, 1 cs.

Writing Paper

Bank of Athens Trust Co., Hellenic Bay, Piraeus, 35 cs.
H. W. Robinson & Co., American Inventor, London, 1 cs.

Drawing Paper

H. Reeve Angel & Co., Inc., Fort Spokane, London, 1 cs.
J. E. Bernard & Co., American Inventor, London, 2 cs.
H. Reeve Angel & Co., Inc., American Inventor, London, 1 cs.
Stevens Nelson Paper Corp., American Inventor, London, 1 cs.

Tracing Paper

Intramar Shipping Corp., American Scientist, Hamburg, 8 cs.

Filter Paper

H. Reeve Angel & Co., Inc., Fort Spokane, London, 14 cs.
H. Reeve Angel & Co., Inc., American Inventor, London, 9 cs.

Cardboard

Intramar Shipping Corp., American Defender, Rotterdam, 75 cs.

Printing Paper

Stevens Nelson Paper Corp., American Inventor, London, 2 cs.
International Expediters, American Inventor, London, 5 cs.

Decalcomanies

Sterling National Bank Trust Co., Batory, Gdynia, 1 cs.

Miscellaneous Paper

Rohner Gehrig & Co., Arnedyk, Rotterdam, 1 roll.

Rags, Baggings, Etc.

New England Waste Co., Yvonne, Rio de Janeiro, 79 bls. pickers.
Cowa & Co., Mormacstern, Recife, 201 bls. cotton pickers.
Padawer Waste & Fibre Co., Mormacstern, Recife, 126 bls. cotton pickers.
New England Waste Co., Mormacstern, San Luis do Maranao, 135 bls. old bagging waste.
New England Waste Co., Mount Mansfield, Cochin, 100 bls. cotton waste.
Chase National Bank, Media, Liverpool, 44 bls. new wool rags, 4 bls. old wool rags, 2 bls. wool thread waste.
(———), Media, Liverpool, 249 bls. new wool rags, 10 bls. wool thread waste, 4 bls. old wool rags.
Ayres W. C. Jones Co., Lista, Rouen, 62 bls. cotton waste.
Castle & Overton, Inc., Lista, Rouen, 54 bls. bagging, 10 bls. waste bagging.
Manufacturers Trust Co., Fort Spokane, London, 84 bls. rags.
Brandwein Mazur Co., American Inventor, Bremen, 165 bls. cotton waste.
E. J. Keller Co., Inc., Exporter, Genoa, 317 bls. jute rags.
State Street Trust Co., Exporter, Genoa, 52 bls. old bagging.
National City Bank, Mohamed Ali El Kebir, Alexandria, 108 bls. scrap bagging.
E. J. Keller Co., Inc., Exchange, Bombay, 200 bls. old jute rags.
Cowa Trading Co., Italia, Genoa, 253 bls. cotton pickers.
(———), American Veteran, Glasgow, 39 bls. linen thread waste.
E. J. Keller Co., Inc., American Veteran, Glasgow, 91 bls. bagging.
A. de Vries Trading Corp., Blommersdyk, Antwerp, 156 bls. scrap bagging.
(———), Kristina Thorden, Copenhagen, 246 bls. bagging.
A. de Vries Trading Corp., Arnedyk, Rotterdam, 57 bls. paperstock.

Casein

Balfour Guthrie & Co., Mormacsea, Buenos Aires, 500 bags.
Hercules Powder Co., Mormacsea, Buenos Aires, 1000 bags (lactic).

Gluestock

National City Bank, Agwiking, Havana, 112 bls.

Woodpulp

Elof Hansson Inc., Kristina Thorden, Wifstavarf, 3000 bls. half prime strong sulphite pulp.
Castle & Overton, Inc., Texas, Drammen, 250 bls. sulphite pulp.

Woodpulp Boards

Manufacturers Trust Co., Batory, Gdynia, 160 bls. (white).

IMPORTS AT BOSTON

Week Ending Sept. 17

S. H. Waldstein, Mount Mansfield, Cochin, 100 bls. cotton waste.
Elliott Addressing Machine Co., Trien Maersk, Kobe, 16 cs. paper.
D. J. Mahoney, Trien Maersk, Kobe, 35 cs. stencil paper.

IMPORTS AT PHILADELPHIA

Week Ending Sept. 17

Castle & Overton, Inc., Texas, Tofte, 1993 bls. dry bleached sulphite pulp.

IMPORTS AT BALTIMORE

Week Ending Sept. 17

The Borregaard Co., Inc., Texas, Drammen, 250 bls. dry bleached sulphite pulp.

1st National Bank of Cincinnati, Texas, Drammen, 241 rolls newsprint.

Castle & Overton, Inc., Texas, Drammen, 500 bls. bleached sulphite pulp.

Castle & Overton, Inc., Texas, Tofte, 450 bls. dry bleached sulphite pulp, 266 bls. bleached sulphite pulp.

IMPORTS AT NORFOLK

Week Ending Sept. 17

Castle & Overton, Inc., Exporter, Genoa, 66 bls. bagging.

E. J. Keller Co., Inc., Exporter, Genoa, 64 bls. rags.

Leigh Textile Co., American Veteran, Manchester, 43 bls. scrap tares.

F. P. Gaskell & Co., American Veteran, Glasgow, 98 cs. coated paper (for cigarette tips).

(———), American Veteran, Glasgow, 126 bls. bagging.

Security National Bank of Raleigh, Texas, Drammen, 235 rolls newsprint.

July Imports-Exports Down

WASHINGTON—Newsprint imports in July are reported at 755,000,000 pounds, valued at $35,900,000, compared with 795,000,000 pounds, of $37,300,000 value in June, by the U.S. Dept. of Commerce. Woodpulp imports are dropped to 114,000 tons valued at $11,600,000 in July, compared with 130,000 tons, of $14,400,000 in June. Paper and paper manufactures exported in July were valued at $6,500,000 compared with $8,400,000 in June.

BIDS—AWARDS • • •

GPO 4th Quarter, 1949 Paper Needs

WASHINGTON — Bids were received on September 12 by the Joint Congressional Committee on Printing for paper for the use of the Government Printing Office for a three-month period beginning October 1, 1949. Awards, announced September 19, are indicated by asterisks (*) before the names of the successful bidders in the tabulation herewith.

Newsprint

No. 1—1,000,000 lbs., 24x36—64; rolls, 19, 24, 36, and 48 ins wide, 36 inches in diameter (3-inch fiber cores).

Pulp & Paper Trading Co.	.049945c
Bermingham & Prosser Co.	.04975c
Old Dominion Paper Co.	.05069c
Old Dominion Paper Co.	.05338c
Old Dominion Paper Co.	.05899c
* Frank Parsons Paper Co.	.04943c

Machine-Finish Book

No. 3—1,330,000 lbs., 25x38—70; flat, cut any size, min. 21 ins., max. 48 ins.

* Barton, Duer & Koch Paper Co.	.1011c
Walker, Goulard Plehn Co.	.107c
The Mudge Paper Co. (200,000 lbs. only)	.104c
Paper Corp. of U. S. (500,000 lbs. only)	.107c
* Wilcox Walter Furlong Co.	.0849c
Frank Parsons Paper Co.	.1038c

No. 6—125,000 lbs., 25x38—70; rolls, 28½ ins. wide, 36 ins. in diameter (3-inch fiber cores).

* Barton, Duer & Koch Paper Co.	.0922c
Stanford Paper Co.	.1082c
Walker, Goulard Plehn Co.	.1017c
The Mudge Paper Co.	.104c
Central Ohio Paper Co.	.0934c
Paper Corp. of U. S.	.0957c

No. 7—150,000 lbs., 25x38—70; rolls, 19, and 38 ins. wide, 36 inches in diameter (3-inch fiber cores).

Barton, Duer & Koch Paper Co.	.0922c
Stanford Paper Co.	.1082c
Walker, Goulard Plehn Co.	.1017c
The Mudge Paper Co.	.0965c
Central Ohio Paper Co.	.0934c
Paper Corp. of U. S.	.0957c
* Wilcox Walter Furlong Co.	.08074c

No. 9—180,000 lbs., 25x38—70; rolls, 24, 36, and 48 ins. wide, 36 inches in diameter (3-inch fiber cores).

Barton, Duer & Koch Paper Co.	.0922c
Walker, Goulard Plehn Co.	.1017c
Mudge Paper Co.	.0965c
Central Ohio Paper Co.	.0934c
Paper Corp. of U. S.	.0957c
* Wilcox Walter Furlong Co.	.08074c

English-Finish Book

No. 10—80,000 lbs., 25x38—90; flat, cut any size, min. width 24 ins. max. width 48 ins.

* Barton, Duer & Koch Paper Co.	.0954c
Stanford Paper Co.	.1015c
Walker, Goulard Plehn Co.	.11c
Paper Corp. of U. S.	.1017c

Machine-Finish Book End Paper

No. 17—20,000 lbs., 25x38—160; flat, cut 38x50 ins.

* Walker, Goulard Plehn Co.	.1075c
Wilcox Walter Furlong Co.	.108c

Offset Book

No. 18—200,000 lbs., 25x38—80; flat, cut any size, min. width 24 ins., max width 48 ins.; the grain to run lengthwise of the sheet.

Walker, Goulard Plehn Co.	.121c
Central Ohio Paper Co.	.1132c
* Paper Corp. of U. S.	.111c
Whitaker Paper Co.	.1195c
R. P. Andrews Paper Co.	.1225c

No. 19—1,600,000 lbs., 25x38—100; flat, cut any size, min. width, 24 ins., max. width 48 ins., the grain to run lengthwise of the sheet.

Stanford Paper Co.	.1108c
Walker, Goulard Plehn Co.	.1175c
* Central Ohio Paper Co.	.1093c
* Paper Corp. of U. S. (300,000 lbs. only)	.103c
Whitaker Paper Co. (800,000 lbs. only)	.1095c
Whitaker Paper Co. (800,000 lbs. only)	.1141c
R. P. Andrews Paper Co.	.1175c

No. 20—80,000 lbs., 25x38—120; flat cut any size, min. width 24 ins., max. width 48 ins the grain to run lengthwise of the sheet.

Stanford Paper Co.	.1108c
Walker, Goulard Plehn Co.	.1035c
* Central Ohio Paper Co.	.101c
Paper Corp. of U. S.	.1018c
Whitaker Paper Co.	.111c
R. P. Andrews Paper Co.	.1025c
Wilcox Walter Furlong Co.	.1075c

Antique Book

No. 21—100,000 lbs., 25x38—90; flat, cut 32x42, 33x43, and 38x50.

Barton, Duer & Koch Paper Co.	.0979c
Stanford Paper Co.	.1039c
Walker, Goulard Plehn Co.	.0995c
Central Ohio Paper Co.	.0976c
Paper Corp. of U. S.	.1033c
Whitaker Paper Co.	.109c
* R. P. Andrews Paper Co.	.0857c

No. 22—10,000 lbs., 25-39—120; flat, cut 32x42, and 38x50 ins.

Barton, Duer & Koch Paper Co.	.0978c
Stanford Paper Co.	.1039c
Walker, Goulard Plehn Co.	.0995c
Central Ohio Paper Co.	.0953c
Paper Corp. of U. S.	.0971c
Whitaker Paper Co.	.104c
* R. P. Andrews Paper Co.	.0857c
Wilcox Walter Furlong Co.	.1011c

50% Antique Book

No. 26—60,000 lbs., 25x38—80; flat, cut 32x48 and 38x48 ins.

Stanford Paper Co.	.1346c
* Walker, Goulard Plehn Co.	.1346c
Paper Corp. of U. S.	.1553c
Howard Paper Mills, Inc. (Aetna Div.)	.1498c
Frank Parsons Paper Co.	.1349c
John W. MacNeil, Inc.	.1494c

No. 27—30,000 lbs., 25x38—80; shall be suitable for writing on with ink, flat, cut 22¾x31 ins.

* Stanford Paper Co.	.1346c
Walker, Goulard Plehn Co.	.1346c
Paper Corp. of U. S.	.1553c
Howard Paper Mills, Inc. (Aetna Div.)	.1498c
Frank Parsons Paper Co.	.135c
John W. MacNeil, Inc.	.1548c

50% Laid Antique Book

No. 29—20,000 lbs., 25x38—140; flat, cut 38x48 ins.; the laid marks to run the 38-inch direction of the sheet; the grain and chain marks to run lengthwise of the sheet.

Stanford Paper Co.	.195c
* Walker, Goulard Plehn Co.	.129c
Paper Corp. of U. S.	.1483c
Royal Paper Corp.	.1378c
Howard Paper Mills, Inc. (Aetna Div.)	.1392c
John W. MacNeil, Inc.	.1436c

Water Resistant (Text) Book

No. 30—50,000 lbs., 25x38—120; flat, cut 32x42 and 35x45 ins.

Stanford Paper Co.	.1534c
Paper Corp. of U. S.	.1425c
* Frank Parsons Paper Co.	.1349c
John W. MacNeil, Inc.	.1459c

Supercalendered Book

No. 33—300,000 lbs., 25x38—90; flat, cut any size, min. width 24 ins., max. width 48 ins.

Walker, Goulard Plehn Co.	.1113c
Mudge Paper Co.	.1025c
* Frank Parsons Paper Co.	.0984c

No. 34—200,000 lbs., 25x38—90; rolls, 28½ and 38 ins. wide, 36 ins. in diameter (3-inch fiber cores).

Walker, Goulard Plehn Co.	.108c
Mudge Paper Co.	.09c
* R. P. Andrews Paper Co.	.0784c

Coated Paper

No. 35—600,000 lbs., 25x38—100; flat, cut any size, min. width 24 ins., max. width 48 ins.

Barton, Duer & Koch Paper Co.	.0975c
* Stanford Paper Co.	.0945c
Walker, Goulard Plehn Co.	.0996c
Frank Parsons Papeh Co.	.0988c

No. 36—150,000 lbs., 25x38—120; flat, cut any size, min. width 24 ins., max. width 48 inch.

Barton, Duer & Koch Paper Co.	.0975c
* Stanford Paper Co.	.0945c
Walker, Goulard Plehn Co.	.0972c
Frank Parsons Paper Co.	.0988c

Goldenrod Coated Book

No. 38—10,000 lbs., 25x38—160; flat, cut 38x50 and 42x58 ins.

Barton, Duer & Koch Paper Co.	.16c
Mudge Paper Co.	.1565c
R. P. Andrews Paper Co.	.1597c
* Butler Co.	.1485c

Coated Book

No. 39—300,000 lbs., 25x38—140; flat, cut 28x41, 32x42, 38x48, 39x50 and 41x52 ins.; the grain to run lengthwise of the sheet.

Walker, Goulard Plehn Co. (150,000 lbs. only)	.1255c
* Consolidated Water Power & Paper Co.	.112c
Bermingham & Prosser Paper Co. (150,000 lbs. only)	.1255c

Litho Coated Book

No. 42—40,000 lbs., 25x38—140; flat, cut 32x42, 35x45, 38x48, 39x50 and 41 52 ins.; the grain to run lengthwise of the sheet.

Stanford Paper Co.	.1455c
* Butler Co.	.1349c

Chemical Wood Mimeograph White and Colored

No. 44—1,300,000 lbs., white, No. 40. Flat, cut 28½x34½, 32½x42½, 38x48½ ins. Grain: size 28½x34½ ins., to run the 28½ inch way; size 32½x42½ to run the 42½ inch way; size 38x48½, to run the 38 inch way.

Barton, Duer & Koch Paper Co.	.0964c
* Stanford Paper Co.	.0858c
Walker, Goulard Plehn Co.	.0989c
Mudge Paper Co. (1,000,000 lbs. only)	.105c
Paper Corp. of U. S. (500,000 lbs. only)	.0998c
Whitaker Paper Co.	.0968c
R. P. Andrews Paper Co. (175,000 lbs. only)	.1063c
Boston Paper Board Co.	.1013c
Wilcox Walter Furlong Co.	.08224c
Frank Parsons Paper Co. (200,000 lbs. only)	.0954c

No. 45—40,000 lbs., blue, buff, green, pink, and yellow, No. 40. Flat, cut 32½x42½, and 38x48½ ins. Grain: Size 32½x42½ to run the 42½ inch way; size 38x48½ ins. to run the 38 inch way. Min. order, one color, 10,000 lbs.

* Walker, Goulard Plehn Co.	.1169c

25% Mimeograph

No. 46—350,000 lbs., No. 40; Flat, cut 28½ x 34½, 32½x42½, 38x48½, and 40½x42 ins. Grain: Size 28½x34½ ins. to run the 28½ inch way; sizes 32½ x 42½ and 40½x42½ ins. to run the 42½ inch way; size 39x48½ to run the 38 inch way.

Stanford Paper Co.	.11c
Walker, Goulard Plehn Co. (175,000 lbs. only)	.1042c
Walker, Goulard Plehn Co. (175,000 lbs. only)	.1059c
Paper Corp. of U. S.	.1159c
Cauthorne Paper Co.	.1038c
* Howard Paper Mills, Inc. (Aetna Div.)	.1036c
Frank Parsons Paper Co.	.1098c

Duplicator Copy Paper, Liquid Process, White and Colored

No. 47—300,000 lbs., white, No. 40. Flat, cut 32x42, 34x44 and 40x52½ ins.; the grain to run lengthwise of the sheet.

* Stanford Paper Co.	.1087c
Walker, Goulard Plehn Co.	.1122c
Paper Corp. of U. S.	.1165c
Eastern Corporation	.1102c
Marquette Paper Corp.	.1127c
Cauthorne Paper Co.	.1092c
Frank Parsons Paper Co.	.1124c

No. 48—80,000 lbs., pink, yellow, green and blue, No. 40; flat, cut 32x42, 34x44, and 40x52½ ins.; the grain to run lengthwise of the sheet.

Walker, Goulard Plehn Co.	.1274c
Eastern Corporation	.1102c
Marquette Paper Corp.	.115c
* Cauthorne Paper Co.	.1132c
Frank Parsons Paper Co.	.1174c

Blue USMO Safety Writing

No. 49—200,000 lbs., No. 32. Rolls, 22 ins. wide, 24 ins. in diameter (3-inch fiber cores).

Walker, Goulard Plehn Co. (100,000 lbs. only)	.1734c
Walker, Goulard Plehn Co. (100,000 lbs. only)	.1749c
* D. L. Ward Co. (150,000 lbs. only)	.1731c
* R. P. Andrews Paper Co. (50,000 lbs. only)	.1705c
* R. P. Andrews Paper Co. (50,000 lbs. only)	.1717c
R. P. Andrews Paper Co. (50,000 lbs. only)	.174c
R. P. Andrews Paper Co. (50,000 lbs. only)	.1763c

Chemical Wood Writing White and Colored

No. 51—100,000 lbs. white, No. 26, flat, cut any size, min. width 21 ins., max. width 48 ins.

Walker, Goulard Plehn Co.	.1173c
* Central Ohio Paper Co.	.1112c
Whitaker Paper Co.	.1163c
Frank Parsons Paper Co.	.1123c

No. 52—2,000,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

Barton, Duer & Koch Paper Co.	.1042c
Stanford Paper Co.	.0925c
Walker, Goulard Plehn Co.	.1073c
Mudge Paper Co. (400,000 lbs. only)	.1074c
* Whitaker Paper Co.	.0973c
* Whitaker Paper Co.	.0985c
Whitaker Paper Co.	.0998c
* R. P. Andrews Paper Co. (900,000 lbs. only)	.0957c
Wilcox Walter Furlong Co.	.1055c
* Frank Parsons Paper Co. (400,000 lbs. only)	.0979c

No. 53—3,300,000 lbs., white, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.

Barton, Duer & Koch Paper Co.	.0982c
Walker, Goulard Plehn Co. (500,000 lbs only)	.1009c
Walker, Goulard Plehn Co. (500,000 lbs. only)	.1049c
* Whitaker Paper Co.	.0948c
* Whitaker Paper Co.	.0963c
Whitaker Paper Co.	.0978c
* R. P. Andrews Paper Co. (900,000 lbs. only)	.0897c
Butler Co. (200,000 lbs. only)	.10563c
Wilcox Walter Furlong Co.	.1055c
Old Dominion Paper Co. (200,000 lbs. only)	.1048c
* Frank Parsons Paper Co. (400,000 lbs. only)	.0929c

No. 54—650,000 lbs., white, No. 32. Rolls, min. width 16 ins., max. width 48 ins., 36 ins. in diameter, (3-inch fiber cores).

Barton, Duer & Koch Paper Co.	.0962c
Walker, Goulard Plehn Co.	.0899c
Central Ohio Paper Co. (200,000 lbs. only)	.095c
R. P. Andrews Paper Co.	.0848c
* Wilcox Walter Furlong Co.	.08024c
Wilcox Walter Furlong Co.	.095c

No. 55—250,000 lbs., white, No. 40; rolls, min. width 16 ins., max. width 48 ins. 36 ins. in diameter, (3-inch fiber cores).

Barton, Duer & Koch Paper Co.	.0902c
Stanford Paper Co.	.09c
Wolker, Goulard Plehn Co.	.0918c
Central Ohio Paper Co. (200,000 lbs. only)	.093c
* R. P. Andrews Paper Co.	.0788c
Wilcox Walter Furlong Co.	.095c

No. 56—40,000 lbs., blue, buff, green, pink, salmon, and yellow, No. 26. Flat, cut any size, min width 21 ins., max. width 48 ins.

Walker, Goulard Plehn Co.	.1274c
Paper Corp. of U. S.	.123c
Paper Corp. of U. S.	.1175c
Frank Parsons Paper Co.	.1175c

No. 57—300,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins. Min order, one color, 10,000 lbs.

* Walker, Goulard Plehn Co.	.1087c
Paper Corp. of U. S.	.1123c
Whitaker Paper Co.	.1094c
Pulp & Paper Trading Co.	.1099c
Old Dominion Paper Co.	.11137c

No. 58—350,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins., Min order, one color, 10,000 lbs.

* Walker, Goulard Plehn Co.	.1087c
Paper Corp. of U. S.	.11c
Whitaker Paper Co.	.1059c
Pulp & Paper Trading Co.	.1099c
Old Dominion Paper Co.	.10988c

No. 59—50,000 lbs., yellow, No. 32. Rolls, 38 ins. wide, 36 ins. in diameter (3-inch fiber cores).

Barton, Duer & Koch Paper Co.	.099c
Stanford Paper Co.	.10c
* Walker, Goulard Plehn Co.	.0924c
Pulp & Paper Trading Co.	.1099c

Chemical Wood Writing, White and Yellow

No. 60—50,000 lbs., white, No. 32. 36-inch rolls 36 ins. in diameter, (3-inch fiber cores).

No. 60—20,000 lbs., yellow, No. 32. 38-inch rolls 36 ins. in diameter (3-inch fiber cores).

* Stanford Paper Co.	.0925c
Walker, Goulard Plehn Co.	.1008c
* Walker, Goulard Plehn Co.	.1097c
Pulp & Paper Trading Co.	.1029c
Pulp & Paper Trading Co.	.1099c
Butler Co.	.11333c
Butler Co.	.10912c
Frank Parsons Paper Co.	.1056c
Frank Parsons Paper Co.	.1106c

Chemical Wood Writing, White and Colored

No. 61—40,000 lbs., white, No. 24; rolls, 22 ins. wide, 34 to 36 ins. in diameter (3-inch fiber cores).

Barton, Duer & Koch Paper Co.	.1025c
Stanford Paper Co.	.12c
Walker, Goulard Plehn Co.	.1023c
* Frank Parsons Paper Co.	.101c

No. 62—25,000 lbs., white, No. 30. Rolls, 22 ins. wide, 34 to 36 ins. in diameter (3-inch fiber cores).

Stanford Paper Co.	.1125c
* Walker, Goulard Plehn Co.	.0998c
Pulp & Paper Trading Co.	.1029c

No. 63—40,000 lbs., blue, green, pink, yellow, buff, cherry, and salmon, No. 24, rolls, 22 ins. wide, 34 to 36 ins in diameter (3-inch fiber cores).

Stanford Paper Co.	.1275c
Walker, Goulard Plehn Co.	.1123c
* Frank Parsons Paper Co.	.106c

White Chemical Wood Writing

No. 64—40,000 lbs., No. 32. Rolls, 38 ins. wide 36 ins. in diameter (3-inch fiber cores).

Stanford Paper Co.	.0925c
Walker, Goulard Plehn Co.	.0949c
Pulp & Paper Trading Co.	.1029c
* Butler Co.	.09128c

25% Lithograph-Finish Map

No. 69—26,000 lbs., No. 40. Flat, cut any size, min. width 22 ins., max. width 47 ins.; the grain to run lengthwise of the sheet.

Barton, Duer & Koch Paper Co.	.149c
* Stanford Paper Co.	.124c
Walker, Goulard Plehn Co.	.1554c
Mudge Paper Co.	.1361c
Howard Paper Mills, Inc. (Aetna Div.)	.0357c

50% Lithograph-Finish Map

No. 70—40,000 lbs., No. 32. Flat, cut any size, min. width, 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet.

Barton, Duer & Koch Paper Co.	.154c
Stanford Paper Co.	.1617c
Mudge Paper Co.	.1519c
* Howard Paper Mills, Inc. (Aetna Div.)	.1483c

No. 71—20,000 lbs., No. 40, flat, cut any size, min. width 22 ins., max. width, 48 ins.; the grain to run lengthwise of the sheet.

Barton, Duer & Koch Paper Co.	.154c
Stanford Paper Co.	.1577c
Walker, Goulard Plehn Co.	.1485c
Mudge Paper Co.	.1479c
* Howard Paper Mills, Inc. (Aetna Div.)	.1463c

No. 73—310,000 lbs., No. 56. Flat, cut any size, min. width 2 2ins., max. width 48 ins.; the grain to run lengthwise of the sheet.

Stanford Paper Co.	.1547c
Walker, Goulard Plehn Co.	.1465c
Mudge Paper Co.	.1468c
Bermingham & Prosser Co. (150,000 lbs. only)	.1433c
Bermingham & Prosser Co. (150,000 lbs. only)	.1443c
Bermingham & Prosser Co. (160,000 lbs. only)	.1443c
* Howard Paper Mills, Inc. (Aetna Div.)	.1432c

High Wet Strength Map

No. 78—400,000 lbs., No. 48; flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet (omit ream markers).

Barton, Duer & Koch Paper Co. (100,000 lbs. only) ..... .149c
* Stanford Paper Co. ..... .1357c
Walker, Goulard Plehn Co. ..... .1399c
Central Ohio Paper Co. ..... .1509c
Paper Corp. of U. S. ..... .1547c
Cauthorne Paper Co. ..... .1428c
Frank Parsons Paper Co. ..... .1529c

50% White Chart, Lithograph-Finish

No. 79—150,000 lbs., No. 72. Flat, cut any size, min. width 22 ins., max. width 46 ins.; the grain to run lengthwise of the sheet unless otherwise specified (omit ream markers).

Barton, Duer & Koch Paper Co... .179c
Stanford Paper Co. ..... .179c
Mudge Paper Co. ..... .1978c
Frank Parsons Paper Co. ..... .1614c
* John W. MacNeil, Inc. ..... .1683c
(A bid of .1614c by Frank Parsons Paper Co. was rejected and an award for .1683c was made to John W. MacNeil, Inc. This award is deferred pending a decision by the General Accounting Office.)

Chemical Wood Manifold White and Colored

No. 83—80,000 lbs., white, No. 18; flat, cut 21x32, 28x34, 32x42, and 34x44 ins.

Stanford Paper Co. ..... .1242c
Walker, Goulard Plehn Co. ..... .1199c
Paper Corp. of U. S. ..... .1396c
* R. R. Andrews Paper Co. ..... .1182c
Bulkley Dunton & Co. ..... .134c
Graham Paper Co. ..... .1229c
Old Dominion Paper Co. ..... .13098c
Frank Parsons Paper Co. ..... .1198c

No. 84—40,000 lbs., white, No. 18, rolls 22 ins. wide, (3-inch fiber cores).

Stanford Paper Co. ..... .1141c
Walker, Goulard Plehn Co. ..... .1088c
* R. P. Andrews Paper Co. ..... .105c
Bulkley Dunton & Co. ..... .1235c
Graham Paper Co. ..... .1095c
Old Dominion Paper Co. ..... .12397c
Frank Parsons Paper Co. ..... .1094c

No. 85—5,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 18. Flat, cut 28x34, 32x42 and 34x44 ins. Min. order, one color, 5,000 lbs.

Paper Corp. of U. S. ..... .16c
* Frank Parsons Paper Co. ..... .13c

50% Manifold, White and Colored

No. 86—10,000 lbs., No. 14, flat, cut 32x42 ins., min. order 10,000 lbs.

* Barton, Duer & Koch Paper Co. . .184c
Stanford Paper Co. ..... .244c
Mudge Paper Co. ..... .1999c
R. P. Andrews Paper Co. ..... .265c

No. 87—100,000 lbs., white, No. 18; flat, cut 21x32, 28x34, 32x42, and 34x44 ins.

* Barton, Duer & Koch Paper Co. .174c
Stanford Paper Co. ..... .18c
Walker, Goulard Plehn Co. ..... .22c
* Mudge Paper Co. (50,000 lbs. only) ..... .1724c
Mudge Paper Co. (50,000 lbs. only) ..... .1744c
Paper Corp. of U. S. ..... .1858c
R. P. Andrews Paper Co. ..... .2475c
Old Dominion Paper Co. (100,000 lbs. only) ..... .17684c
Old Dominion Paper Co. (35,000 lbs. only) ..... .17449c
Old Dominion Paper Co. (35,000 lbs. only) ..... .17699c
Old Dominion Paper Co. (30,000 lbs. only) ..... .17948c

No. 89—15,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 18. Flat, cut 28x34 and 34x44 ins. Min. order, one color, 5,000 lbs.

* Barton, Duer & Koch Paper Co. . .184c
Stanford Paper Co. ..... .20c
Paper Corp. of U. S. ..... .2025c
R. P. Andrews Paper Co. ..... .2485c
Butler Co. ..... .1921c
Old Dominion Paper Co. ..... .18698c

50% White Glazed Manifold

No. 91—20,000 lbs., No. 16. Flat, cut 32x42 ins. Min. order, 20,000 lbs.

Barton, Duer & Koch Paper Co... .194c
Stanford Paper Co. ..... .21c
Paper Corp. of U. S. ..... .2136c
R. P. Andrews Paper Co. ..... .2775c
* Butler Co. ..... .1923c

Chemical Wood Bond, White

No. 102—1,300,000 lbs., white, No. 40, flat, cut any size, min. width 21 ins., max. width 38 ins.

Barton, Duer & Koch Paper Co. (800,000 lbs. only) ..... .1075c
* Stanford Paper Co. ..... .1015c
Central Ohio Paper Co. ..... .1128c
Walker, Goulard Plehn Co. ..... .1042c
R. P. Andrews Paper Co. ..... .1073c
Eastern Corporation ..... .1077c
Marquette Paper Corp. ..... .1074c
Wilcox Walter Furlong Co. ..... .115c

Chemical Wood White Mimeograph Bond

No. 104—20,000 lbs., No. 40, flat, cut 32½x42½ ins.; the grain to run lengthwise of the sheet.

Walker, Goulard Plehn Co. ..... .1275c
* Marquette Paper Co. ..... .1052c

25% Bond, White and Colored

No. 105—100,000 lbs., white, No. 26. Flat, cut any size, min. width 21 ins., max. width 48 ins.

* Barton, Duer & Koch Paper Co. . .148c
Stanford Paper Co. ..... .15c
Mudge Paper Co. ..... .1501c
Howard Paper Mills, Aetna Div... .1497c
Old Dominion Paper Co. ..... .23998c
Frank Parsons Paper Co. ..... .182c

No. 106—700,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

Cauthorne Paper Co. ..... .1433c
* Butler Co. (150,000 lbs. only) .... .13c
* Butler Co. (200,000 lbs. only) .... .1315c
* Bermingham & Prosser Co. (150,000 lbs. only) ..... .1301c
Bermingham & Prosser Co. (200,000 lbs. only) ..... .1316c
* Howard Paper Mills, Aetna Div. (300,000 lbs. only) ..... .1302c
Howard Paper Mills, Aetna Div. (290,000 lbs. only) ..... .1316c
Howard Paper Mills, Aetna Div. (200,000 lbs. only) ..... .1327c
Old Dominion Paper Co. ..... .18999c
Frank Parsons Paper Co. ..... .1576c

No. 109—500,000 lbs., No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.

Barton, Duer & Koch Paper Co... .1353c
* Butler Co. (125,000 lbs. only) ... .1263c
Butler Co. (125,000 lbs. only).... .1271c
* Bermingham & Prosser Co. (125,000 lbs. only) ..... .1264c
Bermingham & Prosser Co. (125,000 lbs. only) ..... .1273c
* Howard Paper Mills, Aetna Div. (300,000 lbs. only) ..... .1255c
Howard Paper Mills, Aetna Div. (200,000 lbs. only) ..... .1275c
Old Dominion Paper Co. ..... .18999c
Frank Parsons Paper Co. ..... .1526c

No. 112—15,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 26, flat, cut 34x44 ins., min. order, 5,000 lbs.

Stanford Paepr Co. ..... .17c
Mudge Paper Co. ..... .1599c
* Howard Paper Mills, Aetna Div. . .1567c

No. 113—80,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 32. Flat, cut any size, min. width 21 ins., max. width 48 ins.

Barton, Duer & Koch Paper Co... .1465c
* Stanford Paper Co. ..... .1346c
Howard Paper Mills, Aetna Div... .1361c
Frank Parsons Paper Co. ..... .1626c

No. 114—30,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 40. Flat, cut any size, min. width 21 ins., max. width 48 ins.

Barton, Duer & Koch Paper Co... .142c
Mudge Paper Co. ..... .1318c
* Howard Paper Mills, Aetna Div. . .1318c
Frank Parsons Paper Co. ..... .1576c

100% White Bond

No. 150—30,000 lbs., No. 40, flat, cut any size, min. width 16 ins., max. width 38 ins. Min. order, 2,000 lbs.

* Barton, Duer & Koch Paper Co. . .239c
Stanford Paper Co. ..... .242c
Walker, Goulard Plehn Co. ..... .2439c
Mudge Paper Co. ..... .2399c
R. P. Andrews Paper Co. ..... .2664c
Frank Parsons Paper Co. ..... .2568c

Chemical Wood White Ledger

No. 150—140,000 lbs., No. 48. Flat, cut any size, min. width 17 ins., max. width 48 ins.

MEISEL MACHINERY IS HELPING IN ALL FIELDS

Cigarette **Wax** **Photographic** **Jet Propulsion**
Condenser **Grease Proof** **Snap-out Forms** **Aero-engine Parts**

MEISEL PRESS MFG. CO. 950 Dorchester Ave., Boston

Stanford Paper Co. ..... .106c
Walker, Goulard Plehn Co. ..... .1175c
Central Ohio Paper Co. ..... .1122c
Paper Corp. of U. S. ..... .1086c
* Pulp & Paper Trading Co. ..... .1038c
Eastern Corp. ..... .1127c
Bulkley Dunton & Co. ..... .10699c
Marquette Paper Co. ..... .1091c
Cauthorne Paper Co. ..... .1149c
Wilcox Walter Furlong ..... .1132c

No. 151—40,000 lbs., No. 64, flat, cut any size, min. width 17 ins., max. width 48 ins.

Stanford Paper Co. ..... .106c
Walker, Goulard Plehn Co. ..... .114c
Paper Corp. of U. S. ..... .1086c
* Pulp & Paper Trading Co. ..... .1038c
Eastern Corporation ..... .1127c
Bulkley Dunton & Co. ..... .10699c
Marquette Paper Corp. ..... .1091c
Wilcox Walter Furlong ..... .1132c

No. 153—40,000 lbs., No. 88. Flat, cut any size, min. width 17 ins., max. width 48 ins.

Stanford Paper Co. ..... .106c
Walker, Goulard Plehn Co. ..... .108c
* Pulp & Paper Trading Co. ..... .1038c
Eastern Corporation ..... .1127c
Marquette Paper Corp. ..... .1091c
Wilcox Walter Furlong ..... .1132c

25% Ledger, White and Colored

No. 154—180,000 lbs., white, No. 48; flat, cut 28x34, 32x42, 34x44, and 38x48 ins. Min. order 10,000 lbs.

Barton, Duer & Koch Paper Co... .1365c
Stanford Paper Co. ..... .139c
* Butler Company ..... .1313c
Howard Paper Mills, Aetna Div... .1318c

No. 155—30,000 lbs., white, No. 64, flat, cut 28x34, 32x42, 34x44, and 38x48 ins. Min. order 10,000 lbs.

Barton, Duer & Koch Paper Co... .1365c
Stanford Paper Co. ..... .14c
* Butler Company ..... .1323c
Howard Paper Mills, Aetna Div... .1324c

No. 156—50,000 lbs., white, No. 88, flat, cut 28x34, 32x42, 34x44 and 38x48 ins., min. order 10,000 lbs.

Barton, Duer & Koch Paper Co... .1365c
Stanford Paper Co. ..... .141c
* Howard Paper Mills, Aetna Div. . .1324c

No. 157—50,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 64. Flat, cut 34x44 ins. Min. order, one color, 10,000 lbs.

Barton, Duer & Koch Paper Co. .1365c
Stanford Paper Co. ..... .144c
* Mudge Paper Co. ..... .1359c
Howard Paper Mills, Aetna Div... .1368c

No. 158—30,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 88, flat, cut 34x44 ins., min. order, one color, 10,000 lbs.

* Barton, Duer & Koch Paper Co. .1365c
Stanford Paper Co. ..... .145c
Howard Paper Mills, Aetna Div... .1388c

100% White Ledger

No. 176—4,000 lbs., No. 48. Flat, cut 28x34, 32x42 and 34x44 ins. Min. order, 4,000 lbs.

* Barton, Duer & Koch Paper Co. . .2415c
Stanford Paper Co. ..... .245c
Walker, Goulard Plehn Co. ..... .2439c
Mudge Paper Co. ..... .2474c
R. P. Andrews Paper Co. ..... .2688c

No. 177—15,000 lbs., No. 64, flat, cut 28x34, 32x42, and 34x44 ins., min. order, 10,000 lbs.

* Barton, Duer & Koch Paper Co. . .2415c
Stanford Paper Co. ..... .2423c
Walker, Goulard Plehn Co. ..... .2439c
Mudge Paper Co. ..... .2454c
R. P. Andrews Paper Co. ..... .2673c

No. 178—10,000 lbs., No. 88. Flat, cut 22¼x31 and 34x44 ins. Min. order, 10,000 lbs.

* Barton, Duer & Koch Paper Co. . .2415c
Stanford Paper Co. ..... .2423c
Walker, Goulard Plehn Co. ..... .2439c
R. P. Andrews Paper Co. ..... .2641c

Chemical Wood, White and Colored Index

No. 182—200,000 lbs., white, 25½x30½—220; flat, cut 32x42 and 34x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, 10,000 lbs.

Stanford Paper Co. ..... .10c
Walker, Goulard Plehn Co. ..... .1011c
Central Ohio Paper Co. ..... .101c
Whitaker Paper Co. ..... .1029c
Pulp & Paper Trading Co. ..... .0986c
R. P. Andrews Paper Co. ..... .1047c
Marquette Paper Corp. ..... .1111
Wilcox, Walter Furlong ..... .1082c
* Frank Parsons Paper Co. ..... .0964c

No. 183—40,000 lbs., white, 25½x30½—280; flat, cut 34x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, 10,000 lbs.

* Stanford Paper Co. ..... .10c
Walker, Goulard Plehn Co. ..... .104c
Pulp & Paper Trading Co. ..... .1003c
R. P. Andrews Paper Co. ..... .1047c
Marquette Paper Corp. ..... .1111c
Wilcox Walter Furlong ..... .1082c

No. 184—15,000 lbs., single-ply, 25½x30½—340; flat, cut 34x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, 10,000 lbs.

* Stanford Paper Co. ..... .10c
Walker, Goulard Plehn Co. ..... .104c
Pulp & Paper Trading Co. ..... .1003c
R. P. Andrews Paper Co. ..... .1047c
Wilcox Walter Furlong ..... .1082c

No. 185—20,000 lbs., buff, single-ply; 25½x30½—220; flat, cut 32x42 ins., with projecting colored-paper marker between each 100 sheets.

Walker, Goulard Plehn Co. ..... .1087c
* Pulp & Paper Trading Co. ..... .1062c
R. P. Andrews Paper Co. ..... .11c
Wilcox Walter Furlong ..... .1102c

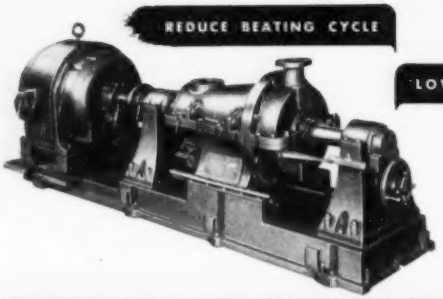
SAVE ON POWER

IMPROVE STOCK CONTROL

CUT OR HYDRATE

REDUCE BEATING CYCLE

LOWER MAINTENANCE



WITH THE JONES HIGH-SPEED REFINER

This is only part of the record of this "mighty mite of stock preparation," this "Jack-of-all-trades" Refiner.

Among the more than 500 now in use:

In a glassine mill, one 60 H.P. High-Speed Refiner eliminated the need for three lava filled beaters.

In another, two 60 H.P. High-Speed Refiners have replaced one 200 H.P. Jordan — and resulted in improved formation of the sheet.

On high-quality ledger, one 40 H.P. High-Speed Refiner refines stock at a range of 300 to 550 lbs. per hour (and replaces a 80-100 H.P. unit).

These are only a few of the applications possible — on rag furnishes, book papers, ground wood screenings, condenser tissue, waste paper for board.

Write for Bulletin EDJ-1011A or ask your Jones representative how the Jones High-Speed Refiner can produce savings for you.

H-2

Features

Small Floor Space — 9' 2⅜", including motor base.

Direct Drive — motor base is integral part of main casting.

Sliding Shell — eliminates endwise motion of plug.

Split Shell — makes inspection or refilling easy.

Adjusting Mechanism — handwheel and scale simplify adjustment.

Clean-out Doors — built in sand and junk trap easily accessible.

E. D. Jones

E. D. Jones & Sons Company, Pittsfield, Mass.

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

50% Index, White and Colored

No. 188—300,000 lbs., white, 25½x30½—220; flat, cut 32x42 and 34x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, 10,000 lbs.

Barton, Duer & Koch Paper Co. (150,000 lbs. only) ..... .1372c
Barton, Duer & Koch Paper Co. (150,000 lbs. only) ..... .1392c
Walker, Goulard Plehn Co. ..... .168c
* Howard Paper Mills, Aetna Div. . .1329c

No. 189—15,000 lbs., white, 25½x30½—280; flat, cut 32x42 and 34x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, 10,000 lbs.

Barton, Duer & Koch Paper Co... .1392c
Walker, Goulard Plehn Co. ..... .17c
* Howard Paper Mills, Aetna Div. . .1349c

No. 191—130,000 lbs., blue, buff, cherry, fawn, green, pink, salmon, and yellow; 25½x30½—20; flat, cut 34x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, one color, 10,000 lbs.

Barton, Duer & Koch Paper Co. .1462c
Walker, Goulard Plehn Co. ..... .1497c
* Howard Paper Mills, Aetna Div. . .1377c

No. 192—10,000 lbs., blue, buff, cherry, fawn, green, pink, salmon, and yellow; 25½x30½—280; flat, cut 34x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, one color, 10,000 lbs.

Barton, Duer & Koch Paper Co... .1482c
Walker, Goulard Plehn Co. ..... .175c
* Howard Paper Mills, Aetna Div. . .1397c

Coated Cover, White and Colored

No. 200—30,000 lbs., white, 20x26—120; flat, cut 26½x41 and 34x44 ins.; the grain to run lengthwise of the sheet. Min. order, 10,000 lbs.

Barton, Duer & Koch Paper Co... .1495c
Stanford Paper Co. ..... .1382c
Mudge Paper Co. ..... .1485c
R. P. Andrews Paper Co. ..... .1519c
* Butler Company ..... .1249c

Antique-Finish Cover, White and Colored

No. 202—60,000 lbs., white, 20x26—100. Flat, cut 25¼x39 inches.

Stanford Paper Co. ..... .125c
* Walker, Goulard Plehn Co. ..... .1018c
Paper Corp. of U. S. ..... .1054c
Whitaker Paper Co. ..... .11c
Pulp & Paper Trading Co. ..... .1092c
R. P. Andrews Paper Co. ..... .1121c
Eastern Corporation ..... .11c
Marquette Paper Corp. ..... .11c
Wilcox Walter Furlong ..... .1167c
Old Dominion Paper Co. ..... .12548c
Frank Parsons Paper Co. ..... .1035c

No. 203—100,000 lbs., 20x26—100; blue, buff, dawn, quaker, drab, terra cotta, gray, brown, green, gobelin blue, granite, tea, and canary; flat, cut 25¼x39 inches. Min. order, one color, 10,000 lbs.

Stanford Paper Co. ..... .13c
Walker, Goulard Plehn Co. ..... .1087c
Pulp & Paper Trading Co. ..... .1235c
R. P. Andrews Paper Co. ..... .1121c
Marquette Paper Corp. ..... .117c
Old Dominion Paper Co. ..... .13298c
* Frank Parsons Paper Co. ..... .1074c

Cloth Lined Cover, White and Colored

No. 205—5,000 lbs., white, brown, and quaker drab; facing paper, 20x26—72; flat, cut 36x38 ins.

* Barton, Duer & Koch Paper Co. (per M sheets) $301.00
Stanford Paper Co. (per M sheets) 301.00
Mudge Paper Co. (per M sheets) 301.00
Whitaker Paper Co. (per M sheets) 301.00

50% Laid Cover, Colored

No. 206—60,000 lbs., blue, cream, white, gray, and green; 20x26—130; flat, cut 25¼x39 and 28x41 inches. Min. order, one color, 2,000 lbs.

Stanford Paper Co. ..... .195c
Walker, Goulard Plehn Co. ..... .1549c
Mudge Paper Co. ..... .1714c
* Paper Corp. of U. S. ..... .1704c
R. P. Andrews Paper Co. ..... .1719c

Wood Manila

No. 208—100,000 lbs., 24x36—80; flat, cut 25x38, and 32x42 ins.

Barton, Duer & Koch Paper Co... .07c
* Stanford Paper Co. ..... .0694c
Walker, Goulard Plehn Co. ..... .0845c
Whitaker Paper Co. ..... .0765c
Pulp & Paper Trading Co. ..... .0716c
Bulkley Dunton & Co. ..... .0717c
Bermingham & Prosser Co. ..... .0823c
Frank Parsons Paper Co. ..... .07159c

No. 210—40,000 lbs., 24x36—80; rolls, 21 ins. wide, 34 to 36 ins. in diameter. (3-inch fiber cores.)

Barton, Duer & Koch Paper Co... .0668c
* Stanford Paper Co. ..... .0617c
Walker, Goulard Plehn Co. ..... .0751c
Whitaker Paper Co. ..... .069c
Pulp & Paper Trading Co. ..... .0656c
Bulkley Dunton & Co. ..... .06575c
Bermingham & Prosser Co. ..... .0748c
Frank Parsons Paper Co. ..... .06559c

Chemical Wood Manila

No. 213—10,000 lbs., 24x36—140; flat, cut 32x42 ins., min. order, 10,000 lbs.

Paper Corp. of U. S. ..... .1405c
* R. P. Andrews Paper Co. ..... .105c

ELIXMAN
CORES
CAPS

Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

Samples of caps or cores will be gladly submitted

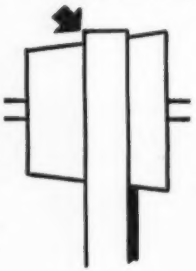
ELIXMAN PAPER CORE COMPANY, INC.
CORINTH, N. Y.

Lower the Belt Cost per Ton of Paper produced, with

Power loss caused by failure of ordinary belt to conform to pulley.

CONE-MASTER

(PATENTED)

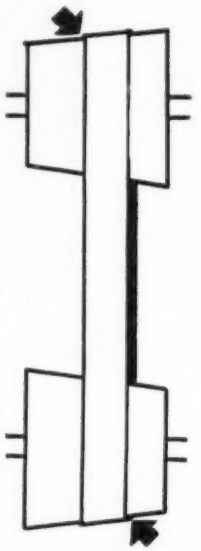


3-PLY LEATHER BELT

scientifically constructed for cone-pulley drives, where the greatest stress on the belt is in a diagonal rather than a straight line.

Even the best belts of normal construction cannot stand up under this excessive stress, belt life is greatly shortened and costs rise.

CONE-MASTER is specifically designed and constructed to meet and overcome these conditions which are always present on a cone-pulley drive.



Maximum power obtained with CONE-MASTER.

★

Experienced Alexander engineers will gladly specify CONE-MASTER belts to meet the particular conditions of your drives. Send for specification sheets.

ALEXANDER PHILADELPHIA

FOUNDED 1867

ALEXANDER BROTHERS

406 North Third Street, Philadelphia 23, Pa.

Rope Manila

No. 215—5,000 lbs., 24x36—160; rolls, 48 ins wide (3-inch fiber cores), min. order, 5,000 lbs.

* Paper Corp. of U. S.	.2909c
R. P. Andrews Paper Co.	.339c

No. 216—5,000 lbs., 24x36—280; rolls, 48 ins. wide (3-inch fiber cores). Min. order, 5,000 lbs.

* Paper Corp. of U. S.	.2909c
R. P. Andrews Paper Co.	.339c

Drumhead Manila

No. 217—5,000 lbs., 24x36—280; flat, cut 32x42 ins., min. order, 5,000 lbs.

* Paper Corp. of U. S.	.307c
R. P. Andrews Paper Co.	.339c

No. 2 Kraft

No. 218—20,000 lbs., 24x36—80; flat, cut any size, in wrapped bundles.

No. 218—40,000 lbs., 24x36—100; flat, cut any size, in wrapped bundles.

No. 218—100,000 lbs., 24x36—120; flat, cut any size, in wrapped bundles.

No. 218—20,000 lbs., 24x36—140; flat, cut any size, in wrapped bundles.

No 218—20,000 lbs., 24x36—160; flat, cut any size, in wrapped bundles.

Paper Corp. of U. S.	.0663c
* Whitaker Paper Co.	.066c
Pulp & Paper Trading Co.	.0686c
R. P. Andrews Paper Co.	.0673c
Boston Paper Board Co.	.0699c
* Cauthorne Paper Co.	.0653c
Old Dominion Paper Co.	.06615c

No. 219—20,000 lbs., 24x36—100; cut any size, folded (25 sheets per fold), in wrapped bundles.

No. 219—5,000 lbs., 24x36—120; cut any size, folded (25 sheets per fold), in wrapped bundles.

Paper Corp. of U. S.	.0663c
Paper Corp. of U. S.	.0663c
* Whitaker Paper Co.	.066c
Pulp & Paper Trading Co.	.0686c
R. P. Andrews Paper Co.	.0673c

No. 220—50,000 lbs., 24x36—100; rolls, min. width 9 ins., max. width 48 ins., wound on wooden plugs, 1½-inch hole, or on 3-inch fiber cores as may be specified.

Paper Corp. of U. S.	.0612c
Whitaker Paper Co.	.0612c
Pulp & Paper Trading Co.	.0612c
R. P. Andrews Paper Co.	.0623c
Boston Paper Board Co.	.0649c
Old Dominion Paper Co.	.0588c
Old Dominion Paper Co.	.06125c
* Cauthorne Paper Co.	.0604c

White Gummed

No. 252—200,000 sheets (ungummed), No. 36; flat, cut 22x34 ins. Min. order, 25,000 sheets.

Stanford Paper Co.	$ 23.91
Mudge Paper Co.	$ 20.48
Paper Corp. of U. S.	$ 20.34
Whitaker Paper Co.	$ 23.34
R. P. Andrews Paper Co.	$ 20.34
Bulkley Dunton & Co.	$ 28.82
Butler Company	$ 20.367
* Old Dominion Paper Co.	$ 20.238

25% Blotting White

No. 254—10,000 lbs., 19x24—160; flat, cut 19x24 ins., in wrapped bundles. Min. order, 10,000 lbs.

Stanford Paper Co.	.1375c
* Walker, Goulard Plehn Co.	.12c
Central Ohio Paper Co.	.1389c
Paper Corp. of U. S.	.1409c
Whitaker Paper Co.	.141c
R. P. Andrews Paper Co.	.15c
Bulkley Dunton & Co.	.13385c
Marquette Paper Corp.	.1325c
Graham Paper Co.	.1384c
Butler Company	.13745c
Old Dominion Paper Co.	.12098c
Frank Parsons Paper Co.	.12c

High-Finish Red Wallet Board

No. 265—5,000 lbs., 24x36—320; flat, cut 38x48 ins., in wrapped bundles, min. order 5,000 lbs.

Paper Corp. of U. S.	.1225c
* R. P. Andrews Paper Co.	.1125c

High-Finish Chemical Wood Manila Tag

No. 271—40,000 lbs., 24x36—280; flat, cut 28x34 and 38x48 ins.

Walker, Goulard Plehn Co.	.0957c
* Paper Corp. of U. S.	.0875c
Whitaker Paper Co.	.0918c
Pulp & Paper Trading Co.	.0992c
R. P. Andrews Paper Co.	.09c

Jute Tag

No. 280—40,000 lbs., 22½x28½—200; flat, cut 34x44 ins., min. order, 10,000 lbs.

Walker, Goulard Plehn Co.	.1699c
Paper Corp. of U. S.	.1768c
* R. P. Andrews Paper Co.	.1559c

No. 281—10,000 lbs., 22½x28½—280; flat, cut 34x44 ins., min. order, 10,000 lbs.

Walker, Goulard Plehn Co.	.1699c
Paper Corp. of U. S.	.1768c
* R. P. Andrews Paper Co.	.1559c

Manila Board

No. 282—10,000 lbs., 22½x28½—400; flat, cut 22x34 ins., with projecting colored-paper marker between each 100 sheets. Min. order, 10,000 lbs.

* Paper Corp. of U. S.	.075c
Pulp & Paper Trading Co.	.1288c

Railroad Board, White and Colored

No. 301—15,000 lbs., white, flat, 22x34 ins., 4-ply, each 100 sheets fully banded, min. order, 10,000 sheets.

Barton, Duer & Koch Paper Co.	$ 52.50
* Paper Corp. of U. S.	$ 51.70
Bulkley Dunton & Co.	$ 52.36
Old Dominion Paper Co.	$ 52.299

No. 304—5,000 lbs., ash gray, green, orange, and red. Flat, 22x34; 4-ply, each 100 sheets fully banded. Min. order one color, 5,000 sheets.

Barton, Duer & Koch Paper Co.	$ 61.45
* Bulkley Dunton & Co.	$ 61.33
Old Dominion Paper Co.	$ 61.21

Wood Cardboard, Colored

No. 306—80,000 lbs., buff; 22½x28½—150; rolls, 20 ins. wide (3-inch fiber cores).

* Barton, Duer & Koch Paper Co.	.0686c
Walker, Goulard Plehn Co.	.0797c
Bulkley Dunton & Co.	.06968c
Bermingham & Prosser Co.	.0699c
Frank Parsons Paper Co.	.0698c

No. 308—10,000 lbs., melon, 22½x28½—184; flat, cut 20x30 ins.

Pulp & Paper Trading Co.	.0846c
Bulkley Dunton & Co.	.08379c
* Bermingham & Prosser Co.	.0773c
Frank Parsons Paper Co.	.0838c

No. 309—140,000 lbs., blue, buff, green, melon, pink, and yellow; 22½x28½—184. Rolls, 20 ins. wide (3-inch fiber cores).

Barton, Duer & Koch Paper Co.	.0735c
Walker, Goulard Plehn Co.	.0797c
Pulp & Paper Trading Co.	.0731c
Bulkley Dunton & Co.	.0737c
* Bermingham & Prosser Co.	.0699c
Frank Parsons Paper Co.	.07359c

Chemical Wood Tan Board

No. 310—80,000 lbs., 22½x28½—200; flat, cut 25x38, 28x38, and 34x44 inches.

* Stanford Paper Co.	.1106c
Walker, Goulard Plehn Co.	.1143c
Paper Corp. of U. S.	.1133c
Whitaker Paper Co. (80,000 lbs. only)	.113c
Pulp & Paper Trading Co.	.1122c
R. P. Andrews Paper Co.	.1112c

United States Postal Card Paper

No. 325—6,000,000 lbs., 22½x28½—188; rolls, 33 ins. wide, 36 ins. in diameter (6-inch iron or metal capped returnable fiber cores).

* Walker, Goulard Plehn Co. (1,000,000 lbs. only)	.0817c
* Whitaker Paper Co. (2,000,000 lbs. only)	.0814c
Whitaker Paper Co. (2,000,000 lbs. only)	.0829c
Whitaker Paper Co. (2,000,000 lbs. only)	.0837c
* R. P. Andrews Paper Co. (2,000,000 lbs. only)	.081c
* Frank Parsons Paper Co. (1,000,000 lbs. only)	.0799c

No. 327—70,000 lbs., 22½x28½—188; rolls, 22 ins. wide, 36 ins. diameter (6-inch iron or metal capped returnable fiber cores).

* Whitaker Paper Co.	.0814c

Pressboard, Colored

No. 352—30,000 lbs., gray, flat, cut 30x36 ins., thickness .0300 inch. Min. order, 5,000 sheets.

* Barton, Duer & Koch Paper Co.	$ 25.58
Whitaker Paper Co. (Order of 30,000 sheets)	$ 33.15
Whitaker Paper Co.	$ 34.15
R. P. Andrews Paper Co.	$ 32.98
Bird & Son, Inc.	$ 26.25

Newsboard

No. 360—130,000 lbs., 26x38; No. 100; flat, cut any size, min. width 21 ins., max. width 40 ins. (To be guillotine-trimmed square on four sides.)

Stanford Paper Co.	.0366c
Mudge Paper Co.	.03697c
Paper Corp. of U. S.	.0384c
Whitaker Paper Co.	.0366c
Pulp & Paper Trading Co.	.036612c
* R. P. Andrews Paper Co.	.03345c
Resolute Paper Products Corp.	.03625c
Old Dominion Paper Co.	.03697c

Binders Board, No. 1 Quality

No. 366—20,000 lbs., No. 1, 25¼x30¼ ins., Nos. 16, 18, 20, 25, 30, and 40; flat, to trim 25x30 ins.

* Barton, Duer & Koch Paper Co.	.0625c
R. P. Andrews Paper Co. (Minimum order 20,000 lbs.)	.06c

Chestnut Cover Board

No. 369—40,000 lbs., 25¼x30¼; flat, to trim 25x30 inches, Nos. 17, 19, 21, 25, 31, and 41.

* Mead Board Sales Co. (No. 41 Board)	.057c
* Mead Board Sales Co. (All others than No. 41)	.05325c

No. 370—120,000 lbs., 25¼x30¼, Nos. 16, 19, 24, and 31. Flat, to trim 25¼x37¼ ins.

* Mead Board Sales Co.	.05325c

Army Awards

N. Y. Army Purchasing Office

QM-30-280-50-76, covering Barrier Material—Bags—Tape, to:

United Mineral & Chemical, N.Y.C. 13, N.Y. —Bags, interior pkg. greaseproof—25,000 ea. @ $.00625.

Newark Paraffine & Parchment Paper Co., Newark, N. J.—Barrier material, greaseproof—3,000 rolls $15.21.

Gummed Products Co., Troy, Ohio—Tape, paper, kraft, gummed, 3"—4,000 rolls @ $0.4256.

Industrial Tape Corp., New Brunswick, N. J. —Tape, adhesive, PS WR, 1"—4,000 rolls $.98.

Directive quantity: Barrier material, 3,000 rolls; Bags, interior pkg., 25,000 each; Tape, paper, kraft, 4,000 rolls; Tape, adhesive, 4,000 rolls.

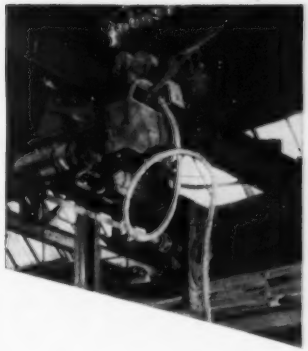
This procurement is for the U. S. Army (Ord.).

Navy Awards

N. Y. Navy Purchasing Office

Inv. No. 5382—Paper, cover, antique finish—2,550,000 sheets, to Pulp & Paper Trading Co., New York N140-155S-13461B, @ $.0112 to $.0450 —½ percent 30 days.

Inv. No. 5299—Paper, waxed, wet process, to: Fabricon Products of Conn., Inc., Bridgeport, Conn. Contr. #N140s-13437B—236,000 lbs. @ $9.50 to $9.98 per cwt.

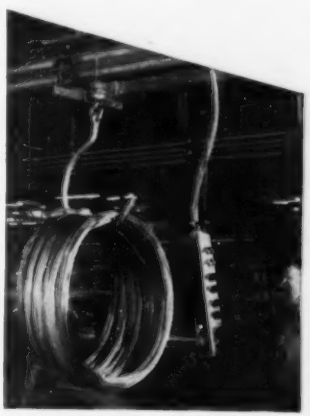


"PUSH-BUTTON WAR"

against high operating costs!

Lifting and moving wire from winding drums to the next operation was a costly proposition in this plant. Then a ½-ton, single I-Beam, motorized Reading Electric Crane was installed. Now the operator pushes a button—the Crane does the rest! That's *real* handling economy!

Better, lower-cost materials handling is never an "accident" with *Unit-Designed* Reading Cranes. Never mass produced, they are *tailored* to fit your job—*at no extra engineering cost!* Find out more about this unique method of crane construction. Call a Reading Engineer for information or installation recommendations, today.



READING CHAIN & BLOCK CORPORATION

2118 ADAMS ST., READING, PA.

Chain Hoists • Electric Hoists

Overhead Traveling Cranes

READING HOISTS

OBITUARIES

C. George leSueur, 51, manager of the export department of the Wyandotte Chemicals Corp., Wyandotte, Mich., died on September 12, at Harper Hospital, Detroit, where he had been a patient for the past month. Mr. leSueur had just earned his 25 year service watch from his company. Born in South Africa in 1898, Mr. leSueur for many years headed Canadian sales for the Wyandotte Corporation, and was formerly a director of the U. S. Alkali Export Ass'n. He is survived by his widow Catherine; a brother, Lloyd and his father George F. leSueur.

Robert Rankin Boyce, 74, retired sales representative of the West Virginia Pulp & Paper Co., died at his home in Newark, N. J., on September 12. Surviving are his widow, Mrs. Caro Ward Boyce; a daughter, Mrs. George T. Hepbron; a son, William Carter Boyce; a brother, W. Wardwell Boyce; and a sister, Mrs. Gertrude Huntington Giffert.

William Blanchfield, 87, who was engaged in lumbering in the Canadian North until his retirement in 1935, died in a hospital in Ottawa on September 13 after a lengthy illness. He is survived by two sons and two daughters.

AMERICAN PAPER AND PULP ASSOCIATION'S PRODUCTION RATIO REPORT*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1949		Corresponding Weeks—1948	
Aug. 6	83.3	Aug. 7	97.0
Aug. 13	85.9	Aug. 14	96.1
Aug. 20	89.9	Aug. 21	97.7
Aug. 27	90.9	Aug. 28	95.2
Sept. 3 (Revised)	89.9	Sept. 4	94.8
Sept. 10	74.8	Sept. 11	78.1

COMPARATIVE MONTHLY SUMMARIES

1948						1949	
Jan.	100.1	May	100.5	Oct.	99.1	Jan.	94.6
Feb.	99.8	June	95.7	Nov.	97.1	Feb.	92.8
Mar.	100.8	July	85.3	Dec.	87.1	Mar.	89.1
Apr.	100.8	Aug.	96.8			Apr.	85.1
		Sept.	91.8	Year Avg.	96.2	May	82.7
						June	78.6
						July	‡72.2
						Aug.	‡88.0

‡ Preliminary.

COMPARATIVE YEARLYS UMMARIES

	1942	1943	1944	1945	1946	1947	1948	1949
Year to Date	92.4	88.0	87.7	87.8	99.9	103.3	96.9	85.5
Year Average	90.4	87.8	88.1	89.4	101.1	104.3	96.2	

PAPERBOARD OPERATING RATIOS†

Current Weeks—1949		Corresponding Weeks—1948	
Aug. 6	82	Aug. 7	90
Aug. 13	84	Aug. 14	93
Aug. 20	87	Aug. 21	93
Aug. 27	86	Aug. 28	93
Sept. 3	89	Sept. 4	91
Sept. 10	72	Sept. 11	76

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1948	99	100	102	102	100	94	81	92	91	96	94	84	95
1949	88	85	79	79	78	75	64	86					

* All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

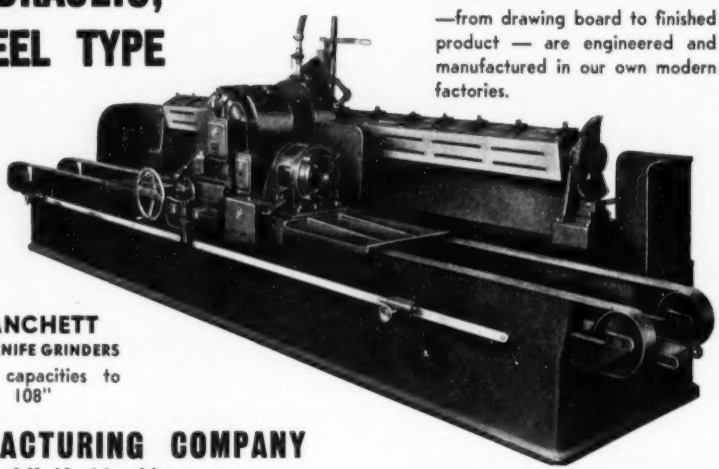
New— HANCHETT "AK"

COVEL SAW SHARPENERS · HANCHETT KNIFE GRINDERS

MAMMOTH, HYDRAULIC, TRAVELING WHEEL TYPE

Wheel-head motors to 25 hp. Cylinder or segmental wheels to 20". Wheel Spindles to 4". Work capacities to 170" or more. Weights to 30,000 lbs.

HANCHETT MACHINES —from drawing board to finished product — are engineered and manufactured in our own modern factories.



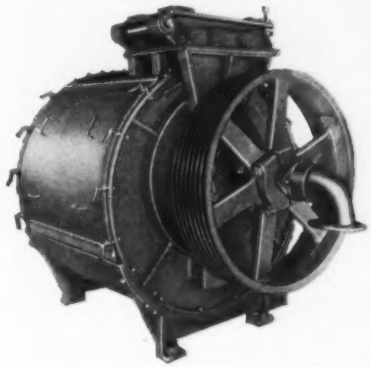
HANCHETT "GK" KNIFE GRINDERS Work capacities to 150"

HANCHETT "DN" KNIFE GRINDERS Work capacities to 108"

HANCHETT MANUFACTURING COMPANY

Manufacturers of Saw and Knife Machinery

HOME OFFICE AND FACTORY, BIG RAPIDS, MICHIGAN • WEST COAST FACTORY, PORTLAND, OREGON



THE COWAN PULP SCREEN

U.S. Patent 2246669

No other centrifugal screen equals it in performance or comes near.

This refers especially to groundwood, sulphate and sulphite pulps.

The design is clean and commonsense.

Ask for your copy of recent Bulletin D-400.

Exclusive Licensee for the United States

MONTAGUE MACHINE COMPANY

TURNERS FALLS, MASS.

integration

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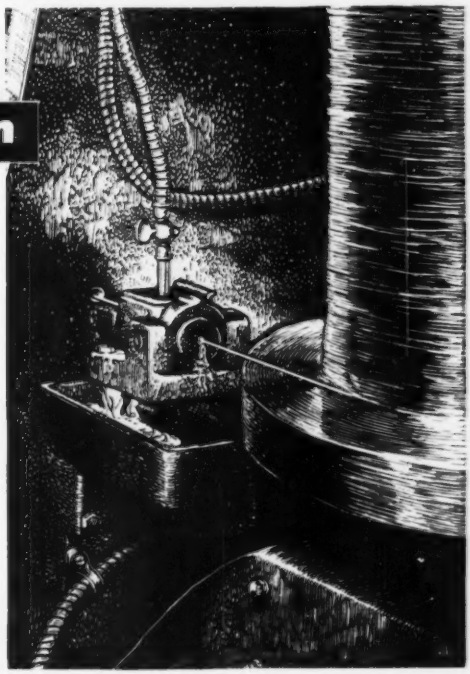
Each step in the specialized production of paper machine wires—including drawing and annealing—is performed by Appleton Wire Works, Inc, . . . another reason why Appleton Wires are Good Wires.



APPLETON WIRE WORKS, INC.

APPLETON, WISCONSIN

F. PAUL BIRK

CONSULTING ENGINEER

PAPER & PULP MILLS
POWER PLANTS

64 W. RANDOLPH ST. CHICAGO 1, ILL.

MERRITT-CHAPMAN & SCOTT CORPORATION

INDUSTRIAL AND BUILDING CONSTRUCTION DIVISION

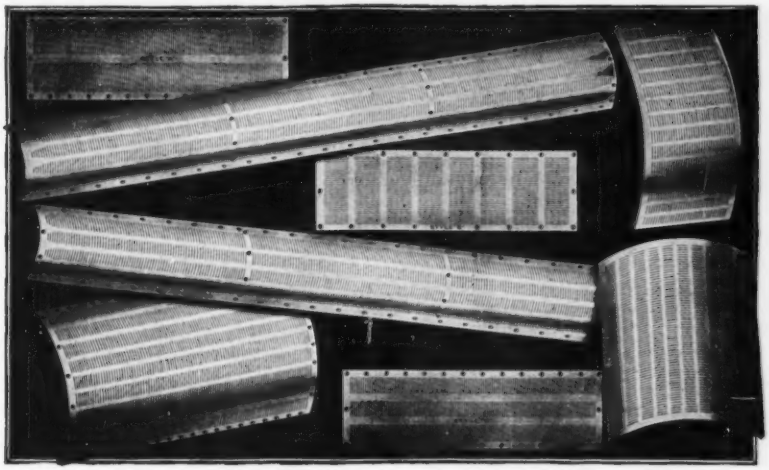
BUILDERS OF MODERN PAPER MILLS

FOR THE FOLLOWING CLIENTS:

Union Bag & Paper Corporation	Savannah, Georgia
Container Corporation of America	Fernandina, Florida
National Container Corporation	Jacksonville, Florida
Southland Paper Mills, Inc.	Lufkin, Texas
Champion Paper & Fibre Company	Pasadena, Texas
Bedford Pulp & Paper Company, Inc.	Big Island, Virginia
Hudson Pulp & Paper Company	Palatka, Florida
B. F. D. Division, Diamond Match Co.	Ogdensburg and Plattsburg, N. Y.
Dexter Sulphite Pulp & Paper Company	Dexter, New York
Alabama Pulp & Paper Company	Cantonment, Florida
St. Joe Paper Company	Port St. Joe, Florida
Camp Manufacturing Company	Franklin, Virginia

Your Confidence Is Justified *Where This Flag Flies*

17 BATTERY PLACE, NEW YORK



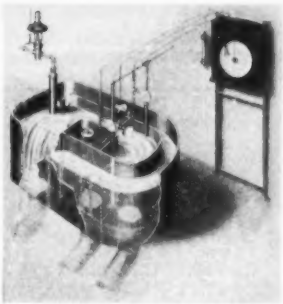
"HARDY" BRONZE and CHROME-NICKEL-STEEL SCREEN PLATES.

MAGNUS METAL CORP. FITCHBURG, MASS.

BRAMMER

recording consistency control

For Accurate Regulation of Consistency . . . and Recording Both Before and After Diluting Water Has Been Supplied



Patented and Patents applied for in U.S.A. and Foreign Countries

Manufactured and sold in Canada by Alexander Fleck Limited, Ottawa, Ontario

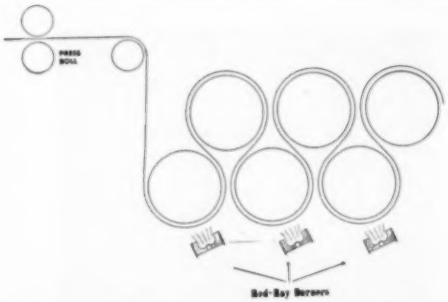
The Brammer Recording Consistency Control is used for regulating the consistency of all types of stocks slow or free. It regulates difficult stocks such as rag, dirty waste paper, or free sulphite, and is not affected by the presence of knots, slivers, etc.

A Foxboro instrument and Foxboro Stabilflo diluting water valve do the work efficiently, dependably and maintain consistency regulation to 1/10 of 1%. Many mills report much closer control.

Typical Brammer applications are: before paper machines to control basis weight and to improve sheet formation; before washers, Jordans and refiners for accurate and controlled stock treatment; before knotters, screens, and thickeners, and before metering and proportioning of pulps.

New Catalog on request

PAPER and INDUSTRIAL APPLIANCES
Incorporated
122 East 42nd Street, New York, N. Y.



RED-RAY BURNERS

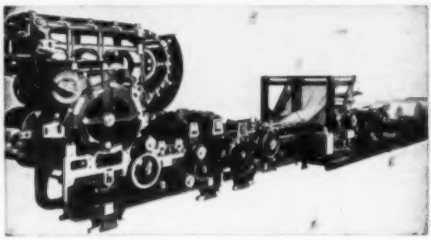
with

automatic controls, installed at wet end of machine increase drying capacity. Turned off automatically if paper breaks or machine stops.

Write for bulletins.

RED RAY MANUFACTURING CO., INC.

455 W. 45th ST. NEW YORK 19, N. Y.



Machine illustrated is a large S.O.S. Multi-wall unit capable of making a maximum size bag 19" x 14" x 64".

Weber machines are known throughout the world.

Write in requesting our bulletin describing the complete line of Weber machines.

H. G. WEBER & CO., INC.

KIEL, WIS., U.S.A.

MEMBER, Packaging Machinery Manufacturers Institute.

CHARGE OF THE ENLIGHTENED BRIGADE!

All furnace charges are under the rigid control of skilled metallurgists, "Our Enlightened Brigade", who supervise every step in the manufacture of Chief Sandusky Centrifugal Castings. The laboratory control of the selection and testing of alloys, and the exclusive use of specified ingot and virgin metals will give you the flawless, uniform castings you need.

Tell your machine builder, "Chief Sandusky."

ON THE JOB—Charging a furnace for a Chief Sandusky Centrifugal Casting.

CHIEF SANDUSKY *CENTRIFUGAL CASTINGS*

SANDUSKY FOUNDRY AND MACHINE CO. SANDUSKY OHIO, U.S.A.

ENGLISH ECCO CLAYS CLAYS

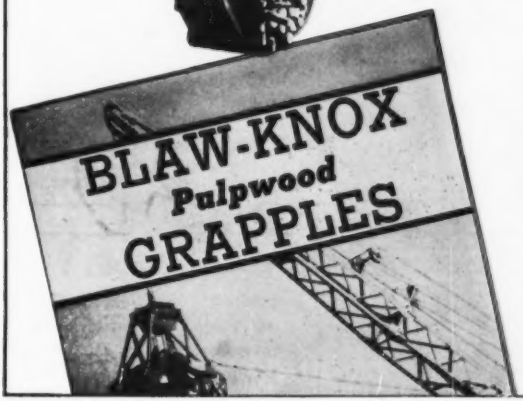
ECCO CLAYS TRADE MARK

UNIFORM SUPERIOR DEPENDABLE

English China Clays Sales Corporation
551 Fifth Avenue, New York City

Size 16 grapple illustrated is capable of unloading an entire car of 18 ft. logs in about five minutes.

Lift the One You Need Right Out of Bulletin #2043



Wherever pulp wood is handled you'll find Blaw-Knox grapples doing a fast, economical job — loading, unloading and stacking . . . From the photos, drawings and specifications contained in Bulletin No. 2043 you can select the one best suited to your needs. Write for it today.

Send for your copy of Bulletin No. 2055.

BLAW-KNOX DIVISION
OF BLAW-KNOX COMPANY
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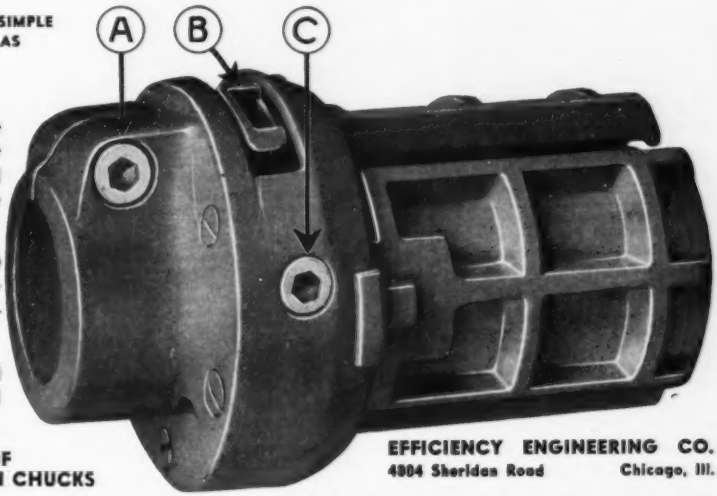
CHUCK PROBLEM SOLVED
APPLYING-EXPANSION-CHUCKS

AS SIMPLE AS



INSTRUCTIONS

A—TO LOCK CHUCK at proper position on shaft insert hex wrench and tighten down socket bolt **A** firmly.

B—TO LOCK ROLL TO SHAFT insert flat bar tool at **B** and pull upward firmly.

C—TO LOCK EXPANSION —insert hex wrench and tighten socket bolt **C**.

EXCLUSIVE FEATURES OF EFFICIENCY EXPANSION CHUCKS

1—Both shaft and core are positively locked together.
2—Perfect alignment is assured.
3—It expands into place.
4—Solid and positive drive.
5—Equally effective for returnable—non-returnable—or metal cores.
6—No lefts or rights—Each chuck of a pair is the same.
7—Withstands unlimited tension.

EFFICIENCY ENGINEERING CO.
4904 Sheridan Road Chicago, Ill.

CLEARING HOUSE

HELP WANTED

MEN WANTED
Positions Open

General superintendent (western mill), bond envelope, mimeograph, writing, glassine and greaseproof papers; manufacturer of shoe boards (northern mill), one to take full charge wet machine mill, also marketing output; assistant superintendent (large western mill), tissue and other lightweight papers; pulp mill chemist (Canada); pulp and paper mill master mechanic (South); mechanical engineering graduate, one strong in hydraulic engineering (West); converting supervisor toilet tissue, towels, napkins, sheeting, splitting, cutting, etc.

We invite correspondence (confidential) with mills seeking executives and with executives seeking new positions.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington Street, Boston, Mass.

S-22

WANTED
CONVERTING SUPERVISOR

Familiar with all phases of converting toilet tissue, towels, napkins, sheeting, slitting, and cutting. N.E. Location. Full resume please. Box No. 49-444 care Paper Trade Journal.

O-6

ENVELOPE ADJUSTER

Experienced adjuster on wide range, SO and plunger machines. Permanent position with excellent opportunity for advancement. State age, experience and salary expected. Address Box 49-439 care Paper Trade Journal. S-29

SALARIED POSITIONS $3,500—$35,000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (39 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
117 Dun Bldg., Buffalo 2, N. Y.

TF

WANTED

First class Paper Mill Superintendent for two machine mill.

Must have experience on straight Fourdrinier and Cylinder machines.

Also experience using old paper stock, making Kraft Papers, Corrugated Material, Boxboard specialties, etc.

Address all replies to,

James J. (Shorty) Andrews
Wallkill Paper Mills, Inc.
P.O. North Hoosick, New York TF

TOUR BOSS—Thoroughly experienced on all grades of folding board. Excellent compensation and further opportunity in one-machine mill. Only applicants outlining past employers and full qualifications will be considered. Address Box 49-435 care Paper Trade Journal. S-29

MACHINE TENDER—Fully experienced on all folding grades. Good steady job with excellent opportunity in one-machine mill. Address Box 49-436 care Paper Trade Journal. S-29

SALESMAN WANTED by a large paper converter and paper jobber in New York City, one who has trade. Write details. Address Box 49-462 care Paper Trade Journal. S-22

SITUATIONS WANTED

TREASURER-CONTROLLER
23 years paper mill experience

Competent executive accountant and office manager desires position of responsibility with A-1 company. Successful background with two paper mills. Have installed and operated cost and general accounting systems. Good education. Practical, energetic and resourceful. Married. Box 49-449, care of Paper Trade Journal. S-22

PLANT ENGINEER or Master Mechanic—Practical experience in preventive maintenance of power and mill equipment in both Fourdrinier and cylinder mills. Excellent reference. Age 40 years. Address Box 49-445 care Paper Trade Journal. O-6

PAPER MAKER and Mechanic—Vast amount of experience, installing operating and maintaining cylinder and Fourdrinier machines and its auxiliary equipment. Excellent health. References. Address Box 49-448 care Paper Trade Journal. O-6

Desire position as ASSISTANT to PRESIDENT or MILL MANAGER or Technical Superintendent. College man, age 37. Excellent technical and production experience in board—pulp—mill, converting, cost quality control, research and development. Now employed. Replies held confidential. Address Box 49-443 care Paper Trade Journal. O-6

SUPERINTENDENT—Fourdrinier or cylinder mill. High grade box board Kraft Specialties, 009 corrugating. Sulphite and groundwood specialties. Cost and quality conscious. Age 40. Excellent references. Address Box 49-446 care Paper Trade Journal. O-6

CHEMIST—Veteran, 32, single, good health. 2 years research in sulphate pulping and multi-stage bleaching. General knowledge of paper mill problems. Seeks employment in paper research, development or production. Address Box 49-461 care Paper Trade Journal. S-29

FOR SALE

FOR SALE

1—Triple Effect Zaremba Evaporator, 84" dia., each effect 1200 sq. ft. of heating surface, 440—1" steel tubes, 2 tile traps, 2 moisture separators, interconnecting piping and barometric condenser, traps and 3 liquid level controllers. Vacuum pumps are not included. Available for immediate shipment. May be inspected at any time.

2—#420 Black & Clawson 10" x 16" Tripiex Geared Stock Pumps, bronze fitted, belt drive, 30" x 10" pulley.

2—Pusey & Jones Triplex Stock Pumps, 10" dia. cylinder, 20" stroke, 25 revolutions of crank shaft will throw 469 gallons. Pumps driven on jack shaft arrangement, gear and pinion drive.

1—Duo-arrangement comprising Van de Carr patent stock inlet combined with 2 standard slices of 14" and 8" high standard design with center and end adjustment supports on adjustable side frames. Stock inlet Pusey & Jones design, 30" high, equipped with motor driven direct-connected perforated distributor roll, adjustable device for leveling the sheet, adjustable deckle in-plates, gauge glass and necessary supporting frames.

3—Washer Cylinders, 42" diameter x 84" face.

24—Brass Table Rolls, 7" dia. x 196" face, equipped with Timken roller bearings #375-372.

Address Box 49-430 care Paper Trade Journal. S-22

FOR SALE

GOOD VALUES—NEW & USED

60" Hamblet Sheeter with Erie layboy and 10 roll backstand, double deck, with shafts and chucks, also 4 sets of slitters. A fine value.
34" Camachine No. 6 Slitter.
32" Hobbs and 34" Inman shear cut Slitters—very cheap.
39" Chandler & Price Automatic Power Paper Cutter.
New 44" National Auto. Power Cutters and 36" National Hydraulics.
Baling Presses—both hand and power.
Brackett 3-knife Trimmer.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 18
(Plant at Stamford, Conn.) TF

FOR SALE

3—Pusey & Jones Deckers. Cylinder molds 42" diameter x 146" face, iron end vats, anti friction bearings, 18" rubber covered couch rolls.

J. J. ROSS COMPANY
250 Frelinghuysen Ave., Newark, N. J.
Telephone Bigelow—3-3720

S-22

FOR SALE

6—Paper Machine Drives, 75 h. p., ratio 8 to 1. All enclosed, with automatic clutches.

A-1 condition.

J. J. ROSS COMPANY
250 Frelinghuysen Ave., Newark, N. J.
Telephone Bigelow 3-3720

S-22

FOR SALE

"One Ferguson Packomatic Case Sealing Machine complete with all operating equipment. Adjustable for case sizes.
"Two E. D. Jones & Sons Majestic Jordans with Motors and Electrical Equipment.
"Noble & Wood Mill complete with 600 HP Induction Motor, Magnetic Controller and Extra Equipment.

A. P. W. Products Company, Inc.
Albany, N. Y.

O-13

In the Hydrapulper it is a combination of swish, rotor location in extreme bottom of tub and gravity pull on the stock that turns the trick.

1. The swish gives action to the furnish, creating a vortex at the center to "suck" the stock down against the rotor vanes.

2. The location of the rotor at the very bottom makes it impossible for any stock to escape treatment. This is always important but doubly so in mills that frequently slush small batches for short runs.

3. Gravity pull rather than mechanical power forces the stock against the rotor—the logical way—the more economical way.

Several hundred mills can't all be wrong—*483 sold to date.*

ALL REQUIRED SIZES. CAST-IRON OR WELDED STEEL TUBS.
With or without Junk Remover and Ragger.

KOHLER SYSTEM EQUIPMENT
•
PRODUCT OF DILTS

SHARTLE BROS. MACHINE CO., Middletown, Ohio
DILTS MACHINE WORKS, FULTON, NEW YORK
Divisions of
THE BLACK-CLAWSON COMPANY, HAMILTON, OHIO
Western Sales Office: Mayer Bldg., Portland, Oregon
Associate: ALEXANDER FLECK LIMITED, Ottawa, Canada
Subsidiary: B-C International, Ltd., 16 Catherine Place, Victoria, London S.W.1, England

FOR SALE

1—Plain Extractor Roll 28" diameter x 150" face.
1—Suction Extractor Roll 22" diameter x 150" face, complete with L-7 Nash Vacuum Pump.

BARKERS
1—5' Carthage Disc Barker

BEATERS
1—800 lb. Beater—iron tub

BEATERS (Laboratory)
2—Dilts Iron Tub Laboratory Beaters. Beater rolls 14" diameter x 10½" face, including motors.

BRASS FELT ROLLS
9—4" diameter x 140" face (with bearings)

BREAST ROLLS
1—100" x 14".
1—114" x 14".
1—120" x 14"

CALENDER STACKS
1—72" 5 roll Calendar Stack.
1—76" 7 roll calender stack (heavy duty).

CHIPPERS
2—95" Murray 4 knife Chippers.

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
1—Jeffrey Hammermill.

CYLINDER MOULDS
1—36" diameter x 80" face.
1—39" diameter x 72" face.
1—36" diameter x 79" face.

DECKERS
1—Decker—48" diameter x 84" cylinder mold
3—Pusey & Jones Deckers Cylinder molds 42 x 146, anti friction bearings, including rubber covered couch rolls.

DRIVES
2—#4 Reeves Drives.
1—#2 Reeves Drive.
1—Smith & Winchester mortise gear Drive.
1—Foote—7½ h.p. Speed Reducer (Ratio 240 to 1)
2—Smith & Winchester Mortise Gear Drives with 20" diameter clutches—Ratio 8 to 1.
6—Enclosed drives. 75 h.p., ratio 8 to 1. Complete.

DRIVES (Angle)
1—General Machine Company 16 : 1.
1—Philadelphia 50:1 — 1 h.p. — 1200 r.p.m.
1—Philadelphia 21¼:1 — 3 h.p. — 1200 r.p.m.

V-BELT DRIVE
1—21½" diameter x 7½" face, 5 groove.
1—16½" diameter x 7½" face, 5 groove. (With clutch).

DRYERS
1—48 x 70.
14—48" diameter x 112 face.
30—36" diameter x 102" face.
50—42" diameter x 126" face.
9—36" diameter x 72½" face, with gears and bearings.
1—48" diameter x 91" face.
2—25" x 120" (Baby Dryers).
2—36" x 143".
1—24" x 130".
1—60" diameter x 47" face.

EMBOSSER
1—84" Hudson Sharp Toilet Embosser. Spare engraved roll.

FELT ROLLS
20 Felt Rolls—Brass covered 8" to 12" diameter.

FILTERS
3—IMPCO Lime Sludge Filters.

FLAT SCREENS
1—6 plate Shartle Flat Screen.
1—8 plate Packer Type Flat Screen.
2—12 Plate Murray Dunbar Flat Screens.
2—14 plate Sandy Hill. (Never used.)

FRICTION CALENDERS
2—30" Waldron.
2—38" Waldron.

HYDRAULIC PRESS
1—Watson-Stillman Co. (Platen 24" x 24").

JORDANS
2—Noble and Wood—Mammoth Type
1—Emerson Jordan—25 to 30 tons capacity —iron plug including new spare iron plug.

MISCELLANEOUS
1—Caustic Mixer.

MOTORS
2—5 h.p. ball bearing—splash proof motors —3/60/440, 1180 r.p.m.
1—¼ h.p. ball bearing—splash proof gearhead motor—3/60/440, 1725 r.p.m.
1—2 h.p. ball bearing—splash proof gearhead motor—3/60/440, 1725 r.p.m.

PRESSES
4 Sections of presses approximately 24" diameter. Rubber and Bronze.

PRESS ROLLS
Various sizes.

PRINTING MACHINE
1—3 color 40" Rotary Cottrell Printing Machine, A-1 condition, provision for 2 more colors.

PULLEYS
Various cone and assorted pulleys.

PULPER
1—Jones Pulper. Complete with motor and drive.

PUMPS
2—Weil Pump Co.—100 g.p.m.—100 P.S.I. including 15 h.p. motors (new equipment).
1—Bell & Gossett—300 g.p.m.—120' head—including 15 h.p. motor.
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1—72" Beloit Reel.

ROLLS
300—Brass tube-steel tube—rubber covered iron rolls—various sizes.

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1—#5 Bird Saveall.
1—Saveall—48" diameter x 84" cylinder mold.
3—Pusey & Jones Savealls. Cylinder molds 42 x 146, anti friction bearings, including rubber covered couch rolls.

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30 Plates cut .016.
10 Plates cut .008.
Also other sizes and cuts in stock

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1—138" Moore & White Sheeter, duplex. with layboy.

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1—208" Cameron—Type 20.
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1—42" Cameron—Type 40-4-B.
1—42" Cameron—Type 24-2A.
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1—115" 2 drum Waldron

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1—Rubber Squeeze Rolls, 20¾" diameter x 102" face.

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1—10 x 20 Shartle Duplex.
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5—Suction Boxes, 82" drilled face x 6" wide.

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1—Downingtown Suction Press Roll 24" diameter x 110" face.

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1—29¾" diameter x 134" drilled face.

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40—Table Rolls 82" face x 3" diameter.

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2—Dietz 81" Toilet & Towel Machines.

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1—181½ ft long x 30" wide—with motor.

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2—94" face x 21⅝" diameter.

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1—110" face x 29" dia.—New.
1—139" face x 19" dia.

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5—IMPCO 40" diameter x 84" face
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1—94" face x 29" dia.—Rubber.
1—118" face x 22" dia.—Rubber.
2—118" face x 21" dia.—Rubber.
1—147" face x 11¾" dia.—Rubber
1—74" face x 18" diameter—Rubber.
1—106" face x 17" diameter—Rubber.
1—102" face x 16" diameter—Rubber.
1—119" face x 17" diameter—Brass.
1—76" face x 10" diameter—Brass.
1—53" face x 14" diameter—Brass
1—53" face x 12" diameter—Iron.
1—55" face x 10" diameter—Iron.
1—74" face x 18" diameter—Iron.
1—73" face x 14" diameter—Iron.
1—102" face x 18" diameter—Brass.

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30—Split cast iron tapered Pulleys.

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1—Nitts & Merrill 217 Pulpwood chipper.
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1—Beloit 110" two bowl upright reel.

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1—Millspaugh 22" diameter x 139¾" suction face.
1—Millspaugh 22" diameter x 138" drilled face.
1—Beloit 107" drilled face x 22" diameter. Anti friction bearings.
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1—68" Universal Trimmer

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1—H2 Nash for motor drive.

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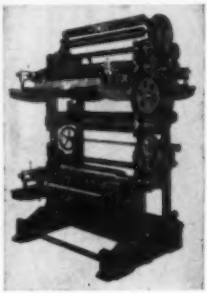

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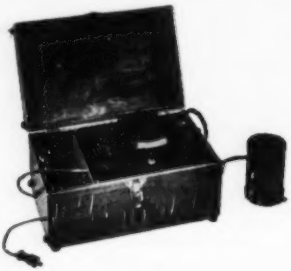

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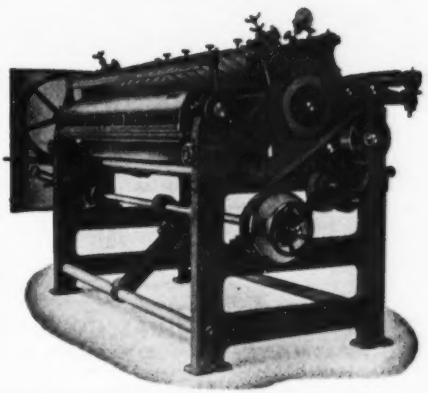

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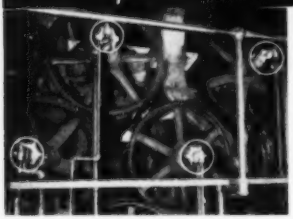

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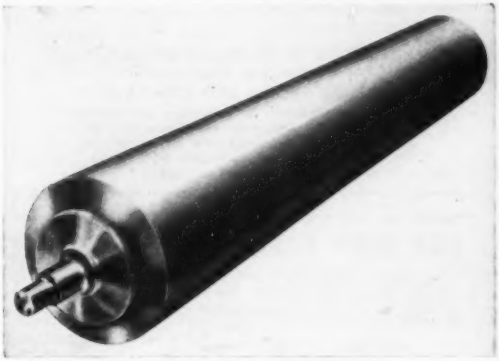

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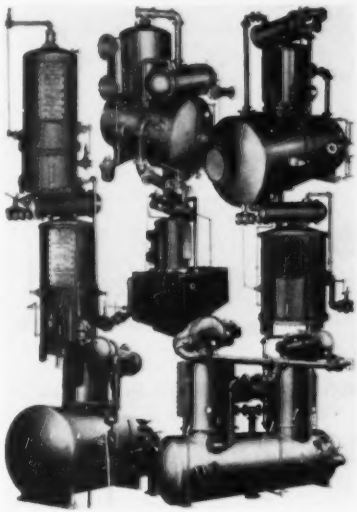

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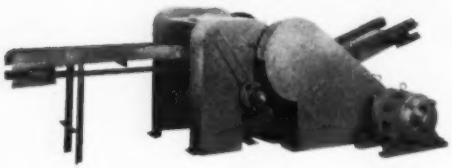

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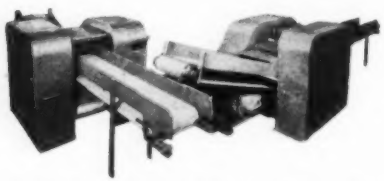

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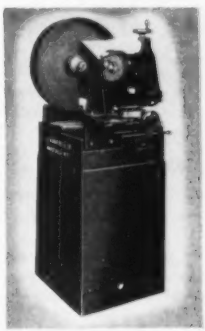

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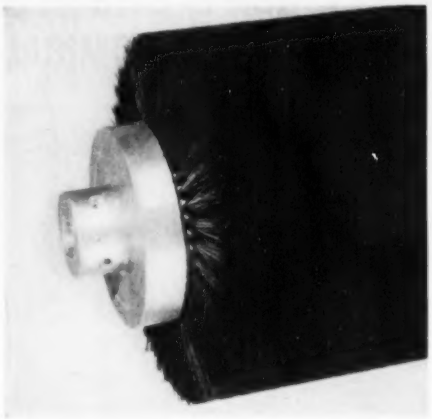

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Shartle Brothers Machine Co.
Waldron Corp., John

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Vanderbilt Co., R. T.
Witco Chemical Co.

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Hungerford & Terry, Inc.
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Witco Chemical Co.
Walworth Company

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Lyddon & Co. (America), Inc.
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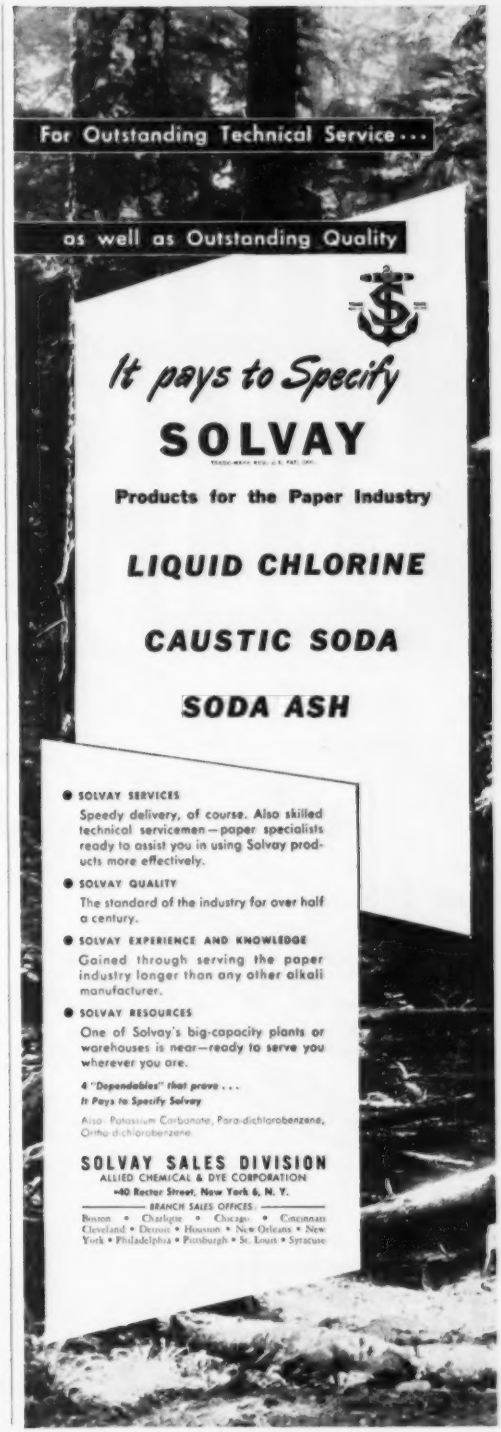
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The Smith & Winchester Mfg. Co.

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The Moore & White Co.
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Pusey & Jones Corp.
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Shartle Brothers Machine Co.
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The Youngstown Welding & Engrg. Co.

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Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

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Hardinge Company

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The Hubinger Co.
Monsanto Chemical Company
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Hudson Sharp Machine Co.
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Potdevin Machine Co.
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Michigan Steel Casting Co.
The Midvale Company
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Stein-Hall Co., Inc.

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Midwest-Fulton Machine Co.
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Texas Gulf Sulphur Co.
Witco Chemical Company

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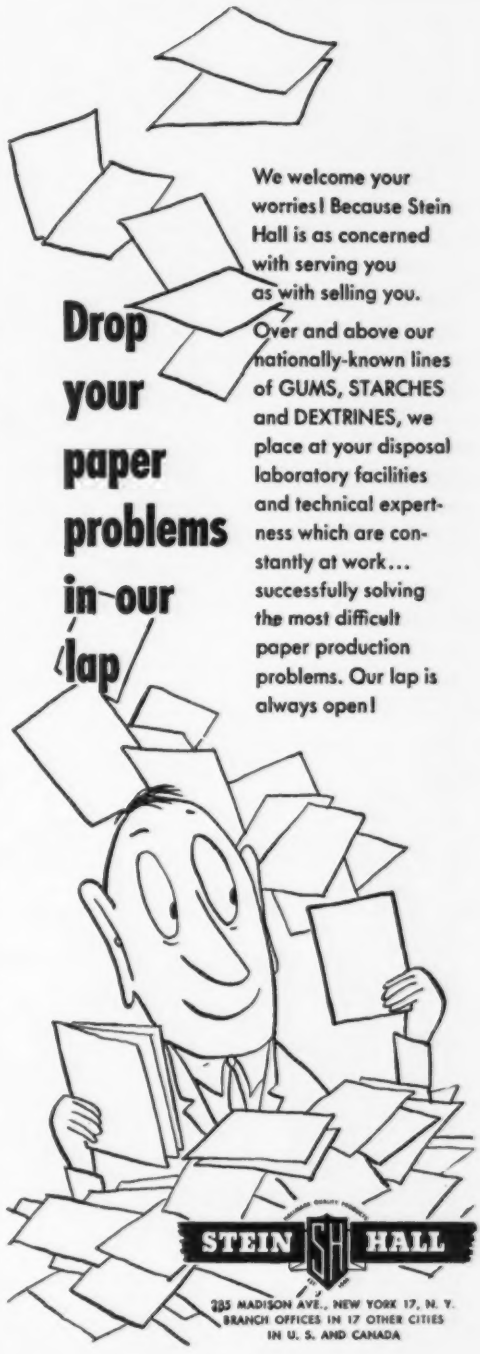
TENSILE TESTERS

B. F. Perkins & Son, Inc.
Testing Machines, Inc.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Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

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Dilts Machine Works.

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J. J. Ross Company
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Weber, Herman G.

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Ross Paper Machy. Corp.
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Waldron Corp., John

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Dilts Machine Works (Kohler System).

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WIRE BRUSHES
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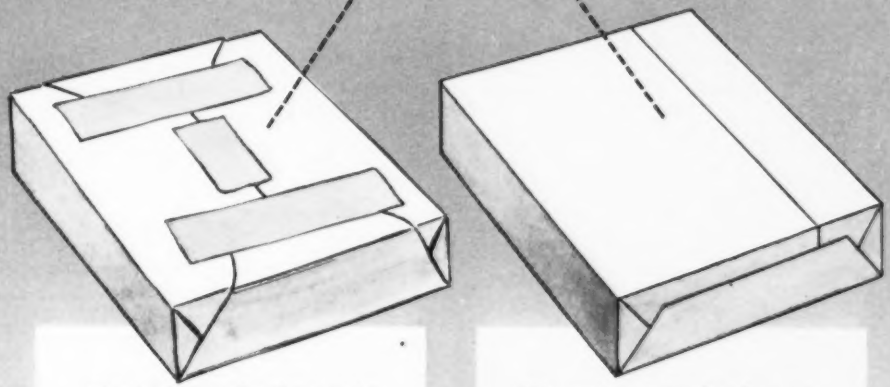

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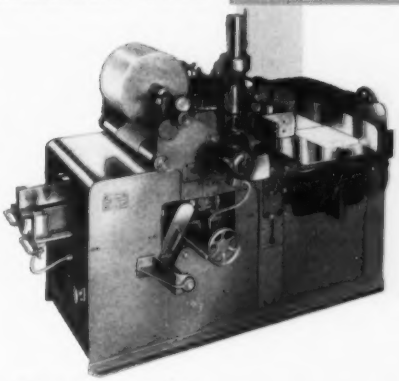

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